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DEPARTMENT OF LANDS AND FORESTS



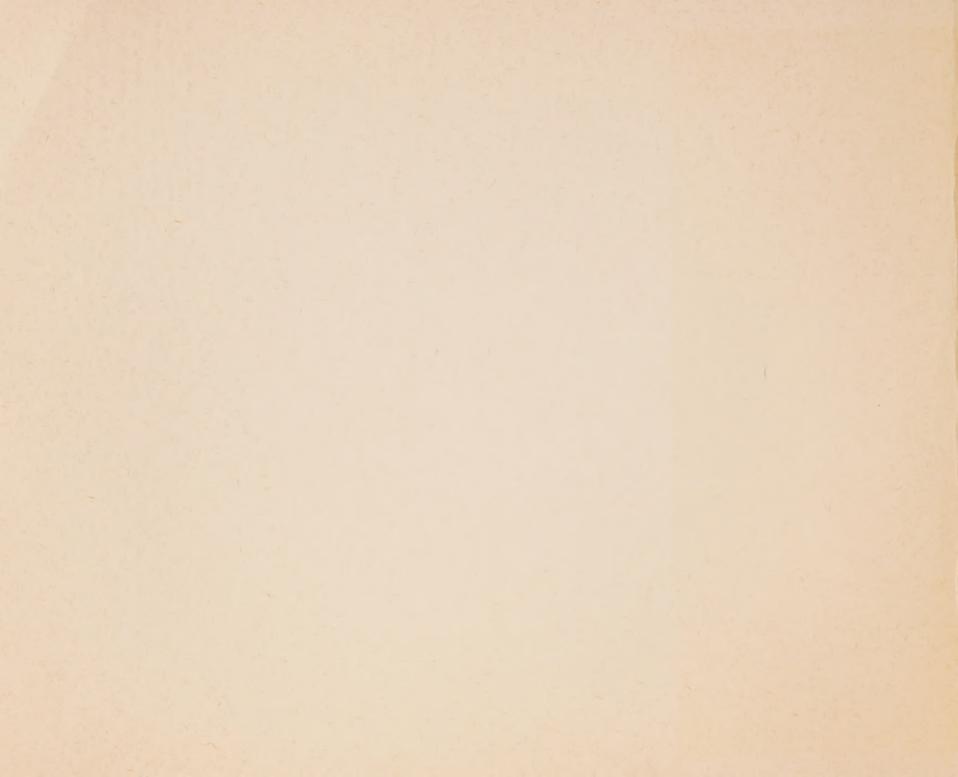
ANNUAL REPORT

OF THE MINISTER OF LANDS AND FORESTS

OF THE PROVINCE OF ONTARIO

FOR THE FISCAL YEAR ENDING MARCH 31, 1968





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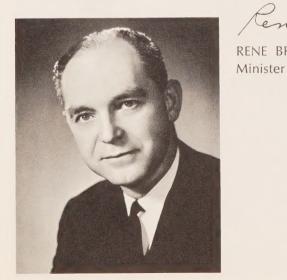


TO HIS HONOUR,

of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR

The undersigned begs respectfully to present to your Honour, the Annual Report of the Department of Lands and Forests for the fiscal year beginning April 1st, 1967, and ending March 31, 1968.



Cene Brunelle RENE BRUNELLE



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Early morning on Semiwhite Lake, Mississagi Provincia Park.

FOREWORD

In presenting this Annual Report, an attempt is being made to review the latest year's activities within the framework of the Department's legal responsibility and administrative function.

In the Report, numerous details may be taken as complete in themselves, but an appreciation of their significance depends on an understanding of their relation to the objectives as they are seen at the present time. Not necessarily in order of priority, the Department's objectives may be summarized as follows:—

- 1. To manage the public domain for a sustained and increasing production of resource materials to meet current and projected requirements.
- 2. To provide for the disposition and acquisition of land in accordance with soundly based, long-range land use plans.
- 3. To provide outdoor recreation opportunities through a network of provincial parks and a fish and wildlife management program.
- 4. To provide advice and assistance to owners of land so that they may realize or provide the benefits resulting from management.

In consideration of the objectives of the Department of Lands and Forests, it is appropriate to list the following Acts which constitute the statutory basis for the Department's responsibilities and authority.

The Provincial Land Tax Act
The Railway Fire Charge Act
The Game and Fish Act
The Wolf and Bear Bounty Act
The Wild Rice Harvesting Act
The Fish Inspection Act
The Fisheries Act (Canada)
The Migratory Birds Convention Act
The Forest Fires Prevention Act
The Public Lands Act
The Surveys Act

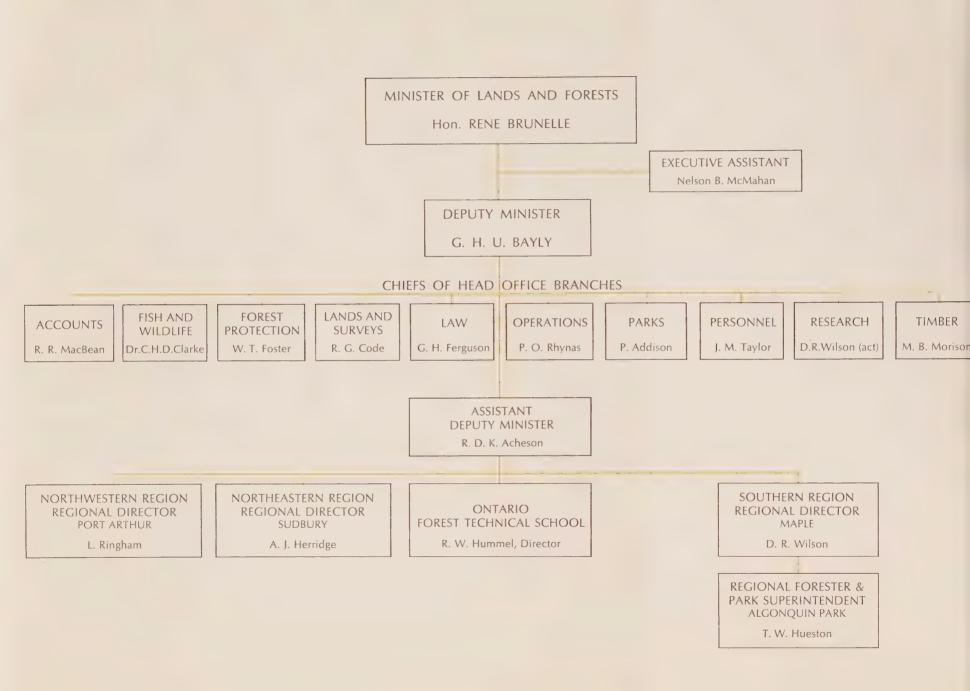
The Surveyors Act The Lakes & Rivers Improvement Act The North Georgian Bay Recreational Reserve Act The Water Powers Regulation Act The Wilderness Areas Act The Ontario Harbours Agreement Act The Beds of Navigable Waters Act The Loggers' Safety Act The Provincial Parks Act The Crown Timber Act The Forestry Act The Trees Act The Settlers' Pulpwood Protection Act The Spruce Pulpwood Exportation Act The Woodlands Improvement Act The Woodmen's Employment Act The Woodmen's Lien for Wages Act The Forest Tree Pest Control Act

The Ontario Geographic Names Board Act

The titles indicate the fields of interest. Together, they represent the diversity of the Department's administration. Additional responsibility is authorized under other Acts, such as The Public Service Act and The Financial Administration Act, which are basically concerned with internal administration.

The setting out of this list of Acts should not imply that the Department is primarily an enforcement agency. Rather, the Acts delineate the authority for management of the renewable, natural resources of the publicly owned lands in the Province. In some instances, the legislative authority also applies to privately owned lands.

The organization chart which follows, along with the separate statements on branch organization, will convey a general understanding of the administrative structure of the Department.







FISH AND WILDLIFE BRANCH

OBIECTIVES

To manage the lands and waters of the Province to ensure that (a) the maximum recreational and economic benefits are gained from the wildlife and fish species while keeping management practices compatible with other land and water uses, and (b) to permit the full harvest of the annual, natural increases of fish and game species on a sustained yield basis.

ORGANIZATION

Fish and Wildlife Branch is divided into two sections and their subordinate units with duties and responsibilities as follows.

WILDLIFE

Game Management: Maintenance and increase of game abundance through improvement of habitat, regulations, inventory of game numbers, measure of participation by hunters, establishment of public hunting areas; and development of agreement with landowners to provide improved game habitat and hunting opportunities.

Fur Management: Biologically sound management of fur-bearing animals; counselling of trappers to assist them in achieving the highest economic returns for their furs; regulations; stocking of animals in depleted areas; and licensing of fur farms.

Field Services: Enforcement of the hunting and fishing regulations; development of training programs for conservation officers related to law enforcement; development of programs to secure the co-operation of the public in observing regulations; and conduct of hunter examinations.

FISHERIES

Sport Fisheries and Hatcheries: Planning, co-ordinating and stimulating programs to maintain, develop and expand the Province's sport fisheries through habitat improvement, regulations, inventory of fish populations, measurement of angler activity and angler harvests, development of provincial fishing areas, providing information, production of hatchery stock and assessment of its effectiveness, distribution of fish, and stimulation of commercial hatchery and private fish pond development.

Commercial Fisheries: Planning and co-ordinating programs based on sound biologic, social and economic bases for the optimum commercial utilization of the Province's fishery resources; issuing licences; collection of statistics (both biologic and economic) on commercial harvests of fish; regulation of harvest through seasons, quotas, gear restrictions and other means; and the development of programs to assist and stimulate industry in catching, processing, handling and marketing of fish.

Fisheries Inventory: Inventory of the waters of the Province; organization and co-ordination of the field programs; and implementation of data processing systems to utilize inventory information for biologic, economic and other uses.

Indian Resource Development: Administration and co-ordination of resource program of fisheries, wildlife, forestry, recreation, etc., under the Federal-Provincial Resource Development Agreement; and development of programs for Indian use of resources.

WILDLIFE SECTION

DEER HUNTING AND MANAGEMENT

The deer management program in Ontario aims at: 1) maintaining satisfactory deer populations for hunting and viewing, and 2) promoting full use of our deer as a natural resource. The success of this program was demonstrated by the 1967 hunt when 148,000 deer licences were sold, 2,000 more than in 1966, and most of the hunters found satisfactory deer hunting. An additional 12,900 non-residents with moose licences could hunt deer if they wished.

Hunter success improved greatly in Lindsay and Tweed Forest Districts in 1967 (Table 1) as predicted in 1966, a year in which weather was very unfavourable for hunting. The inverse relationship between rainfall and hunter success is not exact (Table 2) but the data show that greatly increased rainfall during the 1966 hunting season resulted in reduced hunter success, and a return to normal weather in 1967 brought a return to normal hunter success, comparable with that of 1965.

In central Ontario, hunter success (Table 3) improved in Pembroke and North Bay Forest Districts where unfavourable weather had also reduced hunter success in 1966. Sudbury mainland was still poor but showed some improvement over previous years. Success at Sault Ste. Marie increased slightly. The number of deer taken from Manitoulin Island was a little less than in 1966 and this, coupled with a slight increase in the number of hunters, reduced hunter success in 1967.

In northwestern Ontario (Table 4), a severe winter reduced deer numbers in 1965-66. Hunter success was not much affected in Fort Frances District but it has been very low during the last two years in Sioux Lookout District. Kenora showed improved hunter success in 1967 after the decrease in 1966 resulting from the severe winter. Port Arthur hunter success was not much affected.

In contrast with southern Ontario, where many districts showed over 30 per cent yearlings in 1967, not one of the four northwestern districts reported that many. They were particularly low in Fort Frances District at 13.9 per cent and Sioux Lookout District at 11.1 per cent. This confirms our statement that the severe winter reduced the condition of does to the point where they were unable to raise their fawns. Once more we have a classic example of a severe winter reducing two age classes of deer: those entering the winter as fawns, which starved during the winter; and those born the following spring, which were small and not nourished

TABLE 1
SOUTHERN ONTARIO HUNTER SUCCESS FOR 1967 COMPARED WITH 1966

District	Bruce Peninsula	Lake SIMCOE	Lindsay	Tweed	Kemptville	Parry Sound
Hunters Contacted	2,492	1,360	3,686	3,370	2,602	8,433
Per cent Success 1967	10.5	18.5	22.4	26.4	27.9	34.2
For Comparison Per cent Success in 1966	12.4	18.3	16.5	17.4	25.9	19.2

AVERAGE INCHES OF RAINFALL AND PERCENTAGE HUNTER SUCCESS DURING 1ST WEEK OF DEER SEASON IN LINDSAY AND TWEED DISTRICTS

		Lindsay		Tweed		
	1965	1966	1967	1965	1966	1967
*Rain	.97	2.44	1.78	.59	2.24	.58
Percentage Hunter Success	21.1	16.5	22.4	29.0	17.4	26.

^{*}Average inches falling during first week

TABLE 3

CENTRAL ONTARIO HUNTER SUCCESS FOR 1967 COMPARED WITH 1966

District	Pembroke	North Bay	Sudbury Mainland	Manitoulin Island	Sault Ste Marie
Hunters Contacted	. 742	1,285	980	4,415	2,727
Per cent Success 1967	. 16.2	12.4	8.8	26.0	23.2
For Comparison Per cent Success in 1966	. 10.4	5.4	14.8	29.2	21.8

NORTHWESTERN ONTARIO HUNTER SUCCESS FOR 1967 COMPARED WITH 1966

District	Kenora	Fort Frances	Sioux Lookout	Port Arth
Calculated number of hunters	5,157	3,565	1,978	4,087
Per cent Success 1967	38.9	41.0	12.9	28.2
For Comparison Per cent Success in 1966	32.9	43.6	13.6	32.0

eroperly by their mothers. However, the western deer ange is in good condition, and we expect the herd to ecover quickly.

rospects for 1968 In the eastern deer range, fawn crops ave been large for the past two years, and winters have een mild. Therefore, we expect slightly improved unting next year. In northwestern Ontario, the effects f the severe winter will be with us for another year, nd hunting will be very good but not excellent as in revious years.

DEER RANGE IMPROVEMENT

One of the biggest forward steps in the history of wildfe management in Ontario was the great expansion of eer range improvement work in 1967. Although not pecifically labelled a "Centennial Project", it might 'ell have been for about \$250,000 were channeled into his effort to halt the deterioration in deer range and, if ossible, reverse the trend.

Since logging tapered off several decades ago, the verage age of the forest has been increasing rapidly proughout Ontario. Deer, enduring the winter snows a their yards, have had smaller food supplies each year is the shrubs and young trees grew beyond their reach. It became obvious that, if nothing was done, the whole leer range would gradually deteriorate until it could upport many fewer deer than in the past. The only hing to do was to buy the equipment, hire the men and to to work.

Some deer range improvement had been carried out previous years but it was falling far short of the kind f effort required to make a real difference to the deer. Dur new program was launched on a scale many times he one then in progress. In addition to large purchases f equipment for use in future years, the actual area reated, to bring light to the forest floor and stimulate egeneration of browse species, was increased nearly en-fold. About 2,300 acres (Table 5) were cut (Photo) r bulldozed (Photo) in 1967, compared with only 225 cres in 1966. These acres were scattered through many vinter deer yards in eastern Ontario, so that the total leer range, in which winter food supplies were imroved for deer, approached 190,000 acres. Since the vinter range of deer is only about one-tenth of the ummer range, the deer hunting areas affected by this vinter's work were great indeed.

We intend to continue deer range improvement at bout this scale in the future so deer will be better able to survive severe winters. Thus, we hope to ensure that a many deer, or more, will be available to our people or hunting and viewing.



Improvement of browse production by mechanical means in deer wintering area, Pembroke Forest District.

TABLE 5

DEER RANGE IMPROVEMENT WORK
WINTER 1967-68

District	Net Area Treated	Estimated Area Affected
Sault Ste. Marie	115 acres	4,200 acres
Sudbury	58	3,200
North Bay	356	14,700
Lake Simcoe	26	21,000
Lake Huron	19	7,700
Kemptville	68	2,800
Parry Sound	549	10,200
Pembroke	775	106,400
Lindsay	497	3,100
Tweed	194	15,600
TOTAL	2,257 acres	188,900 acres

MOOSE HUNTING AND MANAGEMEN

Moose licence sales remained just under 61,000 in 1967. The over-all hunter success of 22.7 per cent represented a slight decrease from 1966, most noticeable among non-resident hunters. This was not due to any shortage of moose because there was no long-term decline in numbers of moose shot (Table 6). Aerial counts of moose showed that hunter success was not directly related to moose densities. Districts with high moose densities sometimes had low success (Map 1). Access and ease of hunting played important roles in determining hunter success.

The introduction of Successful Moose Hunter Crests, for hunters who turned in lower jaws of their moose, increased the collection of jaws by 72 per cent in 1967. This program will be continued. Questions on expenditures revealed that residents spent about \$130 each, and non-residents \$270 each, on moose hunting in Ontario. About ten million dollars changed hands in 1967 as a result of the moose season (Table 7).



Cutting to provide browse in deer wintering area, Parry Sound Forest District.

Prospects for 1968 are that moose hunting will be about the same as in 1967.

AERIAL INVENTORY OF MOOSE

An aerial inventory of moose was conducted across the entire major moose range of Ontario during the winter of 1967-68. This was the second effort of this kind, the first having been in 1958-59. The results of this year's survey indicate that moose populations in Ontario have changed little during the nine-year period.

The mean number of moose per 10 square miles was 3.96 in 1958-59 and 3.63 in 1967-68. Considering (1) the nine-year interval between counts; (2) the use of new plots of a smaller size (16 sq. miles rather than 25 sq. miles); and (3) new crews doing the surveys, these results are remarkably close. Eighteen districts were involved in the survey and of these only six showed decreases in moose densities (Table 8). In three of the districts showing decreases, Sioux Lookout, Kapuskasing and Cochrane, weather conditions were unfavourable, and the survey crews were not confident they had obtained good counts. We hope to re-survey these districts next year.

TOTAL NUMBER OF MOOSE KILLED BY DISTRICTS

District	1960	1961	1962	1963	1964	1965	1966	1967
North Bay	426	439	279	345	475	362	495	578
Sudbury	493	654	581	535	426	415	494	669
Sault Ste. Marie	594	799	663	806	783	829	661	709
White River	482	650	663	735	678	763	891	66
Chapleau	463	595	363	594	430	571	683	438
Gogama	441	639	475	485	392	440	518	480
Swastika	511	559	646	868	751	748	712	929
Cochrane	640	511	761	887	803	866	1,102	838
Kapuskasing	996	1,025	1,040	1,316	1,191	1,344	1,141	1,036
Geraldton	1,348	1,427	1,450	1,338	1,221	1,823	1,790	1,608
Port Arthur	1,099	1,071	1,656	1,915	1,907	2,428	2,309	2,28
Fort Frances	159	256	344	268	358	240	284	26;
Kenora	1,284	1,557	1,648	1,352	1,173	1,497	1,614	1,30
Sioux Lookout	1,112	1,648	1,578	1,669	1,336	2,284	1,823	1,410
TOTAL	10,048	11,830	12,147	13,113	11,924	14,610	14,517	13,20;

EXPENDITURES IN ONTARIO REPORTED BY MOOSE HUNTERS, 1967 (Numbers of hunters reporting in brackets)

	Resident Hunters	Non-resident Hunters
Expenditures per hunter on travel and supplies	\$ 76 (5596)	\$213 (3181)
Expenditures per hunter on equipment	\$ 53 (5171)	\$ 59 (2833)
Total expenditures per hunter	\$129	\$272
No. of moose licencees who hunted in Ontario	46,390	11,760
Total calculated expenditure for travel, supplies and equipment	\$5,984,310	\$3,198,720
No. of moose licences sold	48,565	12,336
Cost of licence	\$10	\$101
Total expenditures for licences	\$ 485,650	\$1,245,936
Total expenditures	\$6,469,960	\$4,444,656
Total expenditures by all moose hunters	\$10	,914,616

MOOSE SURVEYS

		19	159			1	968	
			Moose	Moose			Moose	Moose
	No. of	No. of	per	per 10	No. of	No. of	per	per 10
District	Plots	Moose	Plot	sq. mi.	Plots	Moose	Plot	sq. mi.
Kenora	14	250	17.9	7.14	54	428	7.9	4.95
Sioux Lookout	16	224	14.0	5.60	38	152	4.0	2.50
Fort Frances	14	108	7.7	3.09	27	213	7.9	4.93
Port Arthur	10	109	10.9	4.36	43	551	12.8	8.01
Geraldton	18	157	8.7	3.49	44	285	6.5	4.05
Kapuskasing	23	427	18.6	7.43	36	101	2.8	1.75
Cochrane	16	232	14.5	5.80	30	123	4.1	2.56
Nhite River	16	163	10.2	4.07	34	420	12.4	7.72
Chapleau	15	230	15.3	6.13	29	155	5.3	3.34
Gogama	16	256	16.0	6.40	27	165	6.1	3.82
įwastika	23	245	10.7	4.26	34	266	7.8	4.89
Sault Ste. Marie	20	75	3.8	1.50	26	109	4.2	2.62
judbury	13	62	4.8	1.91	38	118	3.1	1.94
North Bay	14	50	3.6	1.43	37	144	3.9	2.43
Parry Sound	19	11	0.6	0.23	40	79	2.0	1.23
Lindsay	9	22	2.4	0.98	15	31	2.1	1.29
[weed	6	0			16	1	0.1	
embroke	14	112	8.0	3.20	13	55	4.2	2.64
TOTALS	276	2,733	9.9	3.96	584	3,396	5.8	3.63



If moose populations have really declined in Chapleau and Gogama Districts as the survey suggests, it is probably due to habitat changes. In the 1940's and early 1950's, spruce budworm outbreaks, followed by large fires, destroyed vast areas of mature trees. Although there were great losses of timber, the moose benefited from the excellent supply of browse plants produced when the forest canopy was opened by these disturbances. In recent years, there has been little similar activity, and in many areas edible plants may be growing beyond the reach of moose. This kind of problem suggests that we will have to pay more attention to moose range management in the future.

BEAR HUNTING AND MANAGEMENT

The sale of spring bear hunting licences in Ontario reached an all-time high during 1967: 4,872 for non-residents and 964 for residents. Previously, the highest sale was in 1958 when 4,803 non-resident licences were sold. Sales decreased in 1959 after licence fees were raised but have been steadily climbing again since then. Compared with 1966, there was a 25 per cent increase for non-residents and a 19 per cent increase for residents in 1967.

This high sale of licences not only provides more revenue but indicates the increasing importance of bears as game animals. It is in line with the Department policy that positive uses of bears, such as hunting and viewing, should be promoted rather than negative uses such as shooting them as nuisance animals. An example of the increase in bear hunting activity is shown in Table 9.

SPRING BEAR HUNT DATA Gogama District, 1963-67

	1963	1964	1965	1966	1967
Number of Hunters	180	101	174	287	349
Number of Bears Shot	40	28	52	50	82
Per cent Success	22.2	27.7	29.9	17.4	23.4

Both the number of hunters and the number of bears shot have doubled since 1963 while the per cent success has remained constant.

Aerial view of moose in winter, Sioux Lookout Forest District.

At least part of the reason for the growing popularity of bear hunting is the continued high hunter success. Reports from tourist camp operators in different parts of Ontario in 1967 (Table 10) indicate that from a quarter to nearly half the hunters were successful in getting bears. They required from 10 to over 20 hunter days to shoot a bear.

The effect of this hunting on the bear population is not great. This is partly because a large proportion of the bears shot are adult males (Table 11). Statistics on age, weight, size, and food habits are being collected from bears which we are able to examine.

Although bear hunting has not yet approached the popularity of deer and moose hunting, already there are substantial economic returns. Swastika District reports that 42 non-resident bear hunting parties spent from \$20 to \$150 per man, averaging \$95.23. This suggests that \$32,000 changed hands, or about \$1,500 per outfitter. At the present time, about one-third of the outfitters in the Swastika District specialize in catering to bear hunters. Similarly, North Bay District reported charges by outfitters to bear hunters of \$90 to \$150 per

week. They estimated that \$25,000 changed hands as a result of the bear hunt in their district. Undoubtedly, as the sport catches on, more outfitters will take advantage of this demand and get into the bear-hunter-outfitting business.

For residents, bears are probably becoming more important in supplementing the fall deer hunt than in providing additional sporting opportunities in the spring. In Parry Sound District, 145 bears were reported shot during the 1967 deer hunt, compared with 79 in 1966. In Pembroke District, 53 bears were reported shot by organized deer hunters, compared with 37 reported by bear hunters during the spring hunt and 19 nuisance bears shot at other times. The extra bonus to deer hunters is appreciated in this district where recent severe winters have taken their toll of deer and subsequently reduced deer hunter success.

Following the high hunter success and high fall bear populations throughout most of the Ontario range, it is anticipated that 1968 will be a big year for those hunters who wish to capitalize on high population levels.

1967 BEAR HUNTER SUCCESS IN SELECTED DISTRICTS (reported by tourist camp operators)

District	Hunters	Bears	°/₀ Success	Hunter Days	Hunter Days per Bear
North Bay	218	93	42.6	972	9.9
Swastika		117	28.4	1,833	15.7
Gogama	349	82	23.4	1,957	23.8
Kapuskasing	59	25	42.5	377	15.1
Kenora	165	48	29.1	847	17.6

TABLE 11

1967 SEX AND AGE OF BEARS REPORTED SHOT IN SELECTED DISTRICTS

District	Adult Males %	Adult Females º/o	Male Cubs %	Female Cubs %	Number of Bears Reported
North Bay	65.7	19.6	9.8	4.9	102
Swastika	67.3	28.7	2.0	2.0	101
Gogama	76.9	20.5	1.3	1.3	78
Kapuskasing	95.8	4.2			24
Kenora	67.5	25.0	5.0	2.5	40

RUFFED GROUSE MANAGEMENT

Management objectives include the provision of regulations which will enable hunters to make maximum use of this traditionally under-harvested species which undergoes periodic and severe fluctuation in numbers; to encourage the use of woodland management practices which increase grouse production; to increase grouse numbers by improving habitat on public hunting areas; and to provide the public with sound predictions relative to the annual availability of grouse.

District staff recorded the size of 1,114 ruffed grouse broods during the months of May through September, 1967. Although the average size of August broods was not significantly different from the previous two years, it was evident by the numbers of broods observed across northern Ontario that grouse were at or nearing the peak in their nine-year cycle.

Pre-season predictions were fulfilled, and in some northern areas, limit bags were the rule rather than the exception. In Geraldton, hunters almost tripled their success rate over 1966. Similarly, success rates tripled in Cochrane and doubled in Kapuskasing and Gogama Districts. North Bay personnel reported that 1967 had provided the best grouse hunting in seven years in the district. Western Ontario also experienced a substantial increase in grouse populations (Table 12).

Although a gradual increase in the number of nonresident hunters might have influenced these figures the trend is what can be expected during the "upswing" phase of a normal nine-year grouse cycle.

Fewer grouse were available in the productive wood lots of agricultural southern Ontario, and record-breaking June rainfall maye have influenced chick surviva: Grouse could be considered in good supply, however and some southern hunters reported between 30 and 40 flushes per day.

NUMBER OF GROUSE EXPORTED AT BORDER CROSSING POINTS Fort Frances District

1963	1964	1965	1966	196
1702	3368	3838	4434	882.

ABLE 13 UFFED GROUSE HUNTER SUCCESS ON FOOT

		Hunter Day	S	Rin	ds Seen P	er 100 H	THE	Riv	ds Shot Pe	r 100 Hou	ırc
istrict	1967	1966	1965	1967	1966	1965	1964	1967	1966	1965	1964
outhern Ontario											
ake Erie**	138	109	106	79	120	129	101	16.3	18.0	25.6	22.7
ake Huron*	1,021	90	616	more resident and	_	_	_	4.0	11.3	8.0	58.0
ake Simcoe**	127	128	139	144	_	167	174	27.5	34.0	38.1	44.4
indsay*	411	167	281		15	18	77	5.9	16.9	8.1	14.7
weed	130	210	121	23	22	_		14.1	16.0	15.6	
emptville**	69	18	73			_		54.0	52.2	46.5	60.7
embroke	137		154	134	_	109	95	32.0	_	27.9	35.0
arry Sound	93	124	101	144	58	96	116	48.2	30.5	46.1	48.6
orthern Ontario)										
orth Bay	101	226	197	69	81	72	58	36.0	39.9	34.7	31.2
udbury	_	222	165			103	56		41.0	68.3	32.0
ault Ste. Marie	78	180	_	66	107	-		32.9	68.4	42.2	41.6
Vhite River	117		51	93	84	87	61	57.5	45.0	59.1	40.1
hapleau†	112	766	_	16	_	200	-	9.1	31.0	100.0	53.0
ogama	36	26	73	125		121	75	71.0	112.0**	* 38.0	67,0
wastika	27			77	_	*****	53	46.4	_		38.0
ochrane	71	96	70	139	46	55	85	74.0	23.7	32.5	41.5
apuskasing	89	41	29	74	138	104	95	48.3	88.4	65.2	35.2
eraldton	57	57		110	43		39	59.0	24.8		28.0
ort Arthur		18	47			-		_	152.0	71.1	
ort Frances	111	151	26	145	90	52		75.2	56.5	26.2	43.1
enora	40	36	103	146	_	91	_	114.8	28.0	52.1	65.8
ioux Lookout	62	26		131	88	100	131	82.4	49.0	44.2	64.2

^{†—}Estimate only.



Ringneck pheasant hen, southern Ontario.

^{*—}Data from all upland game hunters; not comparable with other districts or with previous years.

**—Data received by mail from cooperating hunters

***—Ruffed and spruce grouse combined

TABLE 14
RUFFED GROUSE HUNTER SUCCESS BY ROAD

		Hunter Day	'S	Bir	ds Seen F	er 100 M	iles	Bir	ds Shot Po	er 100 Mile	S
District	1967	1966	1965	1967	1966	1965	1964	1967	1966	1965	1964
Southern Ontario											
Lake Erie	-		_		_			_			
Lake Huron	-		_		_			_			
Lake Simcoe				gyryhand				materia	distance:		
Lindsay*	-	13		_	4	5	6	-	1.2	1.7	3.4
Tweed	40	102		8	4		_	6.0	2.3	_	_
Kemptville		_	-								_
Pembroke	90		100	5		10	8	10.8		3.9	4.0
Parry Sound	178	160	36	22	6	8	9	11.7	2.9	5.4	4.3
Northern Ontario											
North Bay	836	365	241	16	9	11	10	8.3	4.8	7.2	5.7
Sudbury		114	135	_	-	4	5	_	2.0	3.2	3.6
Sault Ste. Marie	107	282		8	8			5.3	5.4	4.1	3.7
White River	71			7	9	10	6	3.1	4.2	5.5	4.4
Chapleau†	117	1,062		2	5	_	Ottomproset	1.3	2.9		3.9
Gogama	149	113	86	17	13	20	4	12.0	6.0	9.0	2.6
Swastika	33			8	-	_	9	5.3	3.4	5.0	5.4
Cochrane	53	-	26	8	6	6	5	5.3	3.4	5.0	3.1
Kapuskasing	335	62	69	13	5	6	5	6.9	3.4	4.1	4.0
Geraldton	37	48		17	4		3	10.9	_		1.9
Port Arthur	-	106	153		14	_			_	12.2	
Fort Frances		292	76		72	80			_		_
Kenora	38	-	29	13	-	5	12	7.4	5.4	3.8	7.6
Sioux Lookout	43	18	_	17	6	6	11	7.1	2.6	3.4	5.8

^{*-}Data from all upland game hunters; not comparable with other districts or with previous years.

TABLE 15
PHEASANT PRODUCTION ON GAME BIRD FARMS, 1967

	Chicks	Poults	Adults	Year-Old Breeding Stock
Codrington Normandale	17,400 24,200	6,000 6,550	5,127 4,420	1,400 1,200
TOTALS	41,600	12,550	9,547	2,600

SHARPTAILED GROUSE

Northern sharptails, birds primarily of the Hudson and James Bay lowlands, are not commonly seen or taken by non-Indian hunters. At irregular intervals and for yet unexplained reasons, extensive migrations of sharptails occur into more populated portions of the province. The winter of 1967-68 was a migration year. Observers in Cochrane, Geraldton and Port Arthur Districts reported particularly large flocks, and the sharptail migration was almost as spectacular as the migration of 1934 when this species became abundant across much of northern and central Ontario.

Since most evidence suggests that few birds ever return to the muskeg, the northern sharptail grouse season was extended from December 15, 1967, to March 30, 1968, in an area involving all portions of the territorial districts of Kenora, Thunder Bay, Algoma, Sudbury and Nipissing. Northern residents of the province and some late-season moose hunters enjoyed excellent winter recreation; good numbers of northern sharptails were harvested in some locations.

There is some indication that 1968 will prove to be another good sharptail year, and if it is, hunters in the central part of the province will again be given an opportunity to take advantage of the wildlife bonus.

PHEASANT MANAGEMENT

Ontario pheasant management aims at maintaining of increasing natural ring-necked pheasant populations in suitable habitat and in providing as much recreation as possible, consistent with principles of sustained yield and other uses of agricultural land. Management goals include the efficient utilization of game farm stocks, the maintenance of natural pheasant populations only in areas having less than fifty inches of annual snowfall, and the collection of sufficient data on which to base management decisions.

Season lengths varied from four to eighty-four days across the province, depending upon the availability of pheasants and the maintenance of breeding stock. Bag limits remained unchanged from 1966.

The Normandale and Codrington game bird farms produce day-old chicks, poults, fall adults and year-old breeding stock for immediate or subsequent release by municipalities and sportsmen's clubs. This stock continues to play an important part in the regulated town ship system which helps in keeping private lands oper to public, upland game hunting. Adult birds were required in larger numbers for release on the very popular, public hunting units operated by the Department.

^{†—}Estimate only.

rends in pheasant populations and the effects of nanagement practices, including regulations and stocking, were evaluated by district staff.

ABLE 16

PHEASANT HUNTING SUCCESS, 1967

District	No. Hunters Checked	No. Pheasants Bagged	Hunter Hours to Bag One Pheasant
INDSAY Opening Day	92	49	1.7
IMCOE Dening Day Complete Season	462 1,045	314 603	5.3 6.3
HESPELER Complete Season	416	203	5.6

o improve the strain of pheasants propagated at the ame bird farms, 145 wild pheasants were live-trapped by Lake Simcoe District staff in areas not open to hunting north of Metropolitan Toronto. These birds were used as breeding stock at Codrington and Normandale ird farms with the intention of introducing more wild enes into the game farm stock.

HUNGARIAN PARTRIDGE

lungarian partridge management is designed to proide maximum use of available partridge stocks and to stablish partridge populations in all areas with suitble habitat in the province.

Kemptville District staff live-trapped 48 partridge uring January and February, 1968, and these birds were eleased in March in Tecumseth Township, Simcoe County. This was the second consecutive year that pirds were planted in this location.

Attempts to propagate Hungarian partridge for introductory purposes were continued at the Codrington same farm. Eggs from wild partridge nests were colected, incubated and reared at Codrington. Several preeding pairs were on hand as of March, 1968, but for s yet unknown reasons they could not be induced to ay eggs. This program will be pursued.

The 1967 open season for Hungarian partridge ran rom September 23 to November 25 in eastern Ontario,

and from September 30 to November 25 in south-western Ontario, with the exception of the counties of Kent, Lambton, and Essex where the season ran from October 25 to November 25. A bag limit of eight with a possession limit of 16 pertained in all areas.

The eastern counties of Kemptville District supported an excellent partridge population in 1967. The coveys were large, and hunters enjoyed the best hunting in several years. Kemptville District staff checked 107 hunters who had taken an average of 2.8 partridge per day.

OTHER SMALL GAME

Since hunting pressure has had little influence on the annual status of most resident small game species, management has been directed at establishing the most liberal seasons possible consistent with other uses of

land, encouraging good hunter-landowner relations, and providing information to the public on the annual availability of small game crops.

The cottontail, European hare and snowshoe hare supply more hours of hunting recreation than all other small game species combined.

All three species appear to be less abundant in Lake Huron District where success rate fell from 3.4 hours, to bag one rabbit in 1966, to 7.7 in 1967. In Lake Simcoe District, it appeared that both jacks and cottontails were in slightly lower supply, but success rates fell only slightly from 6.5 hours per rabbit in 1966 to 6.2 in 1967. The decline in hunter success cannot be attributed solely to availability of game since winter weather conditions, including deep snow, can greatly influence hunter success.

TABLE 17
RABBIT HUNTING IN SOUTHERN ONTARIO, 1967-68

	Number of	Game T	aken	0 1	Hours to
District	Hunters Contacted	Jack Rabbit	Cottontail	Snowshoe Hare	Bag One Animal
Lindsay	411*	16	34	14	14.1
Lake Huron	2,500	363	380	147	7.7
Lake Simcoe	1,254	192	352	113	6.2

^{*---}includes hunters pursuing game such as ruffed grouse, woodcock and pheasant.

WATERFOWL MANAGEMENT

The objective of waterfowl management in Ontario is to maintain populations at or near the levels which occurred during the 1955-58 period and to provide sustained quality recreation for hunters and non-hunters alike. Waterfowl hunting is a popular sport in Ontario, and over 146,000 hunters purchased Canada Migratory Game Bird Hunting Permits in 1967. Records kept by the Canadian Wildlife Service indicate that over 39 per cent of all permits sold in Canada were sold in Ontario. For the first time in Canada, a nation-wide hunter survey, which was based upon a sampling of those buying Migratory Game Bird Permits, was conducted by the Canadian Wildlife Service. 3,646 Ontario hunters responded to a mail questionnaire. The estimated total harvest of waterfowl by Ontario hunters was slightly in excess of one million ducks. Since, as in all such surveys, successful hunters are more prone to report, the actual duck harvest across the province was somewhat lower than this estimate. However, active hunters did report taking an average of 8.71 ducks during the season, and it is obvious that Ontario is far from being a have-not province as far as waterfowl hunting is concerned.

The Canadian Wildlife Service and the Ontario Department of Lands and Forests co-operated in identifying, aging and sexing 9,442 waterfowl wings sent in by a sample of co-operating hunters.

TABLE 19

DUCK SPECIES TAKEN IN ONTARIO, 1967 as determined from wings forwarded by 1,729 hunters

Species	Number of Wings	Percent of Total
Mallard	1,420 1,050 774 671 637 398	24.4 15.0 11.1 8.2 7.1 6.7 4.2 3.8
Greater Scaup	347	3.7
Others (11 species)	1,476	15.8

Although good waterfowl hunting was enjoyed in Ontario in 1967, there was cause for concern for some species. Limited data suggest that there is a declining trend in black duck numbers in the Atlantic Flyway. This species, which is very important to Ontario waterfowl hunters, is extremely difficult to census, and banding continues to be a very important management technique in assessing its status and that of other important waterfowl species in Ontario. The redhead duck

and canvasback are two other species which require special consideration due to their reduced numbers as compared with previous years.

Many agencies co-operated in the 1967 Ontario waterfowl banding program including this Department, the Canadian Wildlife Service, the U.S. Fish and Wildlife Service, and interested private agencies such as the University of Guelph, sportsmen's clubs, and the Ontario Bird Banders Association. In total, 12,751 ducks were banded compared to 12,861 in 1966. Of the 32 banding stations, Department personnel operated 17 and provided direct or technical assistance to four others. In addition, U.S. Fish and Wildlife personnel assisted by Lands and Forests officers, captured and banded 609 ducks by nightlighting, using airboats equipped with a battery of powerful floodlights which confused the birds.

TABLE 20

PRESEASON WATERFOWL BANDING IN ONTARIO, 1967

Species	No. Bande
Black	2,761
Mallard	5,218
Wood Duck	397
Blue-Winged Teal	2,483
Green-Winged Teal	380
Canada Geese	206
Other	1,316
Total	12,751

Seasons and bag limits were established in consultation with Federal authorities. Wood ducks continued it good supply, and the daily limit of four again was allowed; better water conditions on the prairie allowed the restriction on redhead ducks to be lifted but the restriction of two canvasbacks per day was retained. After October 14, hunters were allowed a additional two scaup or goldeneye since these lat migrants are not subjected to heavy hunting pressure.

Field staff continued to evaluate hunter success an to collect biological information during the ope season.

TABLE 18

SALES OF CANADA MIGRATORY GAME BIRD HUNTING PERMITS, 1967-68

Province	Canadian Resident	Non-Resident	Res. Unknown	Total
NEWFOUNDLAND	14,776	40	47	14,863
PRINCE EDWARD ISLAND	3,069	15	10	3,094
NOVA SCOTIA	7,771	54	58	7,883
NEW BRUNSWICK	7,425	251	63	7,739
QUEBEC	31,749	542	200	32,491
ONTARIO		8,022	924	146,493
MANITOBA	33,822	1,591	207	35,620
SASKATCHEWAN	41,416	3,006	229	44,651
ALBERTA	54,620	926	346	55,892
BRITISH COLUMBIA		576	268	33,195
PROVINCE UNKNOWN	1,011	47	53	1,111
TOTAL	365,557	15,070	2,405	383,032

ABLE 21
)PENING DAY DUCK HUNTING SUCCESS

: Pistrict		Hunters ecked 1967	Вая	Ducks gged 1967		ks per nter 1967
	1300	1307	1300	1507	1300	1 207
EMPTVILLE						
Complete district	599	469	629	519	1.06	1.10
WEED	841	637	979	1,077	1.16	1.70
IMCOE						
Complete district	1.245	1.042	1,011	853	0.81	0.82
Tiny Marsh		58		102		1.03
ESPELER						
Luther Marsh	1 587	1.453	1,074	1.005	.66	.69
7 Selected Areas		414	251	195	.64	.47
	551	11-1	231	100	٠٠٠	• 17
RIE	226	265	404	270	1.25	1 12
Long Point and Rondeau Public Hunting Units Field Checks		265	404	379 568	1.25	1.43
	_	566		300	- Control of the Cont	1.00
EMBROKE						
Westmeath Twp		150		278	_	1.85
OCHRANE						
Lillabelle Lake	76	76	119	147	1.60	1.93

rtESE

the Department continued to assist Indians in the ludson and James Bay areas in running commercial oose hunting camps. Assistance was given the Albany ndian band, in operating camps at Kapiskau and ashechewan, and the Attawapiskat band which operted a camp on the Attawapiskat River. Excellent snow oose, Canada goose and duck hunting was available nd 51 hunters were accommodated in the three camps. Het profit for the three bands for the 1967 season was 6,773.38.

Sioux Lookout staff assisted Cree Indians at Fort evern in operating a camp situated on the Severn liver near Hudson Bay. One hundred and thirty visitors participated in the waterfowl hunt, and the total finanial return to the Fort Severn Indian band was 11,961.34. This constitutes a major portion of the pand's annual income.

The giant Canada geese, which were introduced by the Ontario Department of Lands and Forests and the New York State Conservation Department on adjacent management areas along the St. Lawrence River beween Morrisburg and Cornwall, continue to thrive. Shout 700 goslings were produced in 1967 on the two

units where breeding Canada geese were rare or absent a scant ten years before. On August 23, 1967, a count by helicopter showed 1,200 resident geese. A later survey on October 30 revealed a concentration totalling 4,000.

Canada geese along Lake St. Lawrence are most important from a viewing standpoint. Good numbers of geese now are resident all summer long and utilize the parklands surrounding Upper Canada Village and the Ontario St. Lawrence parks for grazing purposes. It is evident that migrating Canada geese are stopping more frequently all across eastern Ontario in fall and affording increased hunting opportunities each year.

PROVINCIAL HUNTING AREAS

The wildlife and hunting opportunities supplied in Ontario's out-of-doors have been topics of much discussion. The problems involved in supplying hunting opportunities in southern Ontario are growing larger with each passing day. No longer is it possible for people from many parts of southern Ontario to merely "hop over" the back fence for a morning's hunt as they did in past decades. Cities have claimed many former wildlife lands, and posting of private lands close to



Mallard ducks on Grenadier Pond, Toronto.

metropolitan areas has made the quest for a day in the field with a gun and a dog a full-day event.

More hunting areas on public and private lands are urgently needed close to urban centres. As part of the solution to this problem, lands have been acquired as public shooting grounds. This Department established the first controlled waterfowl shooting area on the marshes of Long Point, South Walsingham Township, Norfolk County, in 1961. Beginning with 1,700 acres of marshland at Long Point, today there are 19 Provincial Hunting Areas totalling slightly more than 20,000 acres.

These lands are available for a multitude of outdoor recreational uses, from waterfowl and upland game hunting to nature photography.

A quality hunting experience, to those who wish to participate, is the aim of the Ontario public hunting ground program. A day afield, amid rugged terrain, a variety of wildlife cover, and abundant game, is the keynote to a quality hunt rather than attempts to "limit out" every time.

PHEASANT HUNTING AREAS

There are four exclusively pheasant hunting areas established in provincial parks of southern Ontario at Sibbalds Point, Earl Rowe, Presqu'ile and Darlington Provincial Parks. Another pheasant hunting area is the Gananoque Provincial Hunting area which differs from the other four because it is exclusively a public hunting area and provides quality hunting for other native upland game and waterfowl as well as for stocked pheasants. In these areas, pheasants reared at Codrington and Normandale Provincial Game Farms are released in good cover in numbers according to demand.

This program has gained in popularity over the years as indicated by the number of man-days of recreation provided. In 1967, 2,951 man-days of hunting were enjoyed in the field in the four pheasant areas located in provincial parks. Such a program has provided in addition, pheasant hunting in areas where normally this past-time would not occur because three of the five units are outside the native pheasant range.

In addition to the 4,698 pheasants released at the provincial parks mentioned above and the Gananoque Provincial Hunting Area, a limited number of pheasants were stocked in good cover at Tiny Marsh in Simcoe County and the Brighton property in Northumberland County to provide opportunities to hunt pheasants outside the natural range of this game bird.



ABLE 22

LANDS ACQUISITION — PROVINCIAL HUNTING AREAS

ands Acquired for Wildlife Purposes from 1962 to 1967.

Area County	Acres	Acres Acquired In 1967
iny Marsh Simcoe	2,096	55
Angle Ditch Marsh BruceBruce	200	
uther Marsh	800	79
Vye LakeSimcoeSimcoe	701	
ohnston Harbour BruceBruce	4,204	
Dept. Highways Transfervariousvarious	1,062	
Aylmer Airport	555	
ingal Airport	780	
Duclos Point	188	
BrightonNorthumberland	721	9
Cendal	650	
Aurray MarshNorthumberland	1,598	
CharlottenburgStormont	258	
GananogueLeeds	1,046	
Winchester Bombing RangeDundas	1,056	
.ong PointNorfolk	90	
Nonguon RiverOntario	1,862	1,862
MacCauley Twp	1,220	
FOTAL	19,087	2,005

In addition, under A.R.D.A. Project #6013, 35,134 acres of land have been acquired in various townships in the Forest District of Parry Sound as multi-use areas. In this area, deer wintering areas rank high in priority.

ABLE 23

PUBLIC PHEASANT HUNTING AREAS, 1967

	Presqu'ile	Darlington	Sibbald Point	Farl Rowe
	r resquire	Danington	Stobald Form	Laii Nowe
Hunting areas in acres	415	380	450	425
Number of Hunters	394	902	995	660
Number of birds released	694	1,430	1,568	1,006
lumber of birds recovered		1,258	1,384	898
irds per hunter	1.5	1.5	1.4	1.4

WILDLIFE MANAGEMENT UNITS UNDER DEVELOPMENT

Land recently acquired or in the process of being acquired will be managed to meet wildlife needs of adequate food and cover. Management plans for each provincial hunting area include development of winter cover, nesting cover, escape cover, food plots and, in many cases, water areas for the wildlife species present. Many water improvement projects are planned on

these hunting areas for waterfowl and furbearer use. Fencing will be employed to delineate property boundaries as well as reduce grazing by domestic animals which often destroys valuable nesting cover. Moderate grazing, in certain wildlife habitats, can have beneficial results.

Harvest of wildlife on the hunting grounds can be improved by the use of strip-cropping of vegetative cover and the mowing of harvest lanes through dense vegetation. Marking properties, as Provincial Hunting Areas, and the construction of access roads also aids the hunter in his use of these areas.

Many of the management practices designed by the Department will be carried out with the assistance of landowners who live near the shooting areas through share-crop or direct payment programs. Under the agreements with adjacent landowners, part of the standing food crop on the land will be left close to cover. These food strips will provide winter feed for wildlife.

The Gananoque and Tiny Marsh Provincial Hunting Areas are properties now being developed as wildlife production areas.

Rock ridges, interspersed with small farm fields, beaver ponds, wet lowlands and hardwood bush, provide a rough and varied terrain in which to hunt grouse, pheasants, rabbits, waterfowl, woodcock and deer on the 1,041 acres of the Gananoque Provincial Hunting Area. Wildlife management practices, to increase the carrying capacity of the range for ruffed grouse, included the planting of 45,300 conifers and 980 wildlife shrubs. Some of the shrubs, such as mountain ash, Russian olive, high-bush cranberry and caragana, were used to develop hedges where wildlife could seek food, cover and nesting sites. In addition, the remaining section of the three-mile access road was completed.

Statistics for the 1967 season are as follows:

TABLE 24

GANANOQUE PROVINCIAL HUNTING AREA, 1967

Number of hunters	1,328
Number of pheasants released	1,200
Game harvested: Pheasants Ruffed Grouse Ducks Woodcock Cottontails — rabbits Varying hare European hare Wilson Snipe	924 42 10 31 200 5 1
TOTAL	1,216
Units of game per hunter: 0.9	

Wildlife habitat restoration and marsh development began in March of 1967 at Tiny Marsh, when a temporary dam was placed across the main drainage ditch, subsequently flooding 1,000 acres. This 2,041 acres of wetland and sub-marginal agricultural land in Simcoe County, near Midland, some 85 miles north of Toronto, is managed to provide public hunting in season for ducks and geese as well as pheasants, rabbits, grouse and woodcock on the upland. During the remainder of the year, the area is open to those who wish to view wildlife in its natural haunts.

To attract and hold waterfowl on the impoundment, a refuge-sanctuary system was employed. Use of this technique established daily flights of ducks and geese across the open shooting zone. To attract migratory geese to the sanctuary, a flock of giant Canada geese was held on a pond near the marsh edge. The pond and centre island were created using ammonium nitratefuel oil mixture as a blasting agent.

During opening day of the 1967 duck season in Tiny Marsh, conservation officers checked 58 hunters who had hunted a total of 105 hours to bag and retrieve 102 ducks or 0.97 ducks per man-hour of hunting. The species of waterfowl killed on opening day were black ducks, mallards, greenwinged teal, blue-winged teal, wood ducks, pintails, ring-necked ducks, American widgeon, shovellers and common mergansers.

PROVINCIAL WATERFOWL HUNTING AREAS

Controlled waterfowl shooting units were established at the beginning of this decade to manage the marshes and waterfowl in such a manner that quality waterfowl hunting could be enjoyed. Hunter congestion on many marshes has reduced the quality of the hunt, increased the danger of hunting accidents, and reduced the bag to less than one duck per hunter per day.

A "controlled hunt" signifies that many aspects of management of the resource and users of the resources are being employed. Water-level control structures, refuges, feeding sanctuaries, controlled shooting zones (Zone A), peripheral hunting zones (Zone B), limited shooting hours, alternate shooting days, and limited numbers of hunters are methods employed to develop a marsh for waterfowl and waterfowl shooting.

A refuge and feeding sanctuary are two separate areas set aside in the marsh where waterfowl are allowed to rest and feed without being disturbed. Ducks obtaining a "free meal" in the feeding sanctuary will beheld on the marsh much longer than they would normally stay if they were dependent upon natural food supplies. Further encouragement for waterfowl "to stick around a little longer" is the technique employed whereby hunting is permitted only three or four alternate days during the week; the remaining days are considered "rest days", and the area is not open to hunting.

The controlled shooting zone (Zone A), where a limited number of hunters, who buy daily permits, an allowed to shoot from blinds supplied by this Depart ment, is located between the refuge and the feedin sanctuary. This juxtaposition of refuge and feedin sanctuary on either side of the controlled shooting zone is important as a means of providing daily flights of ducks across the shooting zone.

The Zone B shooting areas, where the numbers of hunters who buy seasonal permits are not restricted and their blind locations are not predetermined, are usual located on the periphery or at the ends of the controlled shooting zone.

TABLE 25
SUMMARY OF PROVINCIAL WATERFOWL HUNTING AREAS, 1967

Name of Area	Hunting Area in Acres		ber of nters		aterfowl ken	Average Bag Per Hunter		
		Zone A	Zone B	Zone A	Zone B	Zone A	Zone E	
Long Point	1,750	2,080	371	2,211	185	1.06	0.50	
Rondeau		928	83	1,508	155	1.62	1.87	
Presqu'ile	2,170	_	487					
Darlington		370			_	_	-	
Holiday Beach		-	715		969	_	1.4	

Total number of hunters in all units — 5,034.

- 65mm; mem

he managers of wild furbearers have as their objective take an optimum harvest at maximum benefit while ustaining the yield. To achieve this, it is necessary to now the animal populations in any given area, as wells the numbers and value of the harvest taken from it.

The mainstay of the fur industry is still the beaver hose populations are remaining at a very high level with the exception of some parts of the Patricias and lorth Bay and Pembroke Districts. Muskrat populations re very good and could stand a much heavier harvest, ut market conditions in the 1967-68 season were not ery favourable for muskrats. Mink populations, which ad been dwindling for the past five years, are on the ncrease or have stabilized in the northern and western istricts, but are still reported going down in the puthern areas. Populations of the other furbearers are ormal and stable with the exception of lynx which is till at a low ebb in its normal fluctuations which follows closely on the heels of the rabbit "cycle". Lynx re highly dependant on rabbit as their main prey

The only transplanting that took place in 1967-68 was ne of twelve marten which were caught in the Port rances District and released in the eastern part of Fort rances District.

Weather conditions were generally good for trapping, ut the trapping pressure decreased in many areas due the availability of alternate employment. This was nost noticeable among the Indian trappers of the James ay area. Market and economic returns, however, enerally improved.



Valking a trapline, northern Ontario.

TABLE 26

SUMMARY OF DISTRICT FUR RETURNS, 1967-68
(Values Based on OTA Auction Season Averages)

(Values Based on O	I A Auc	ction Season A	(verages)													5
District	Trappers	Value	Beaver 16.84	fisher 13.81	Fox 7.91	Lynx 30.69	Marten 6.41	Mink 10.01	Muskrat .99	Otter 23.37	Raccoon 4.50	Squirrel .32	Weasel .27	Wolf 7.88	Bear 20.23	Castoreum 5.16
Chapleau	74	\$ 65,835.55	2,855	16	45	19	1,176	262	638	212	1	74	30	20	_	127.2
Cochrane	109	82,985.12	3,842	49	64	114	823	317	1,706	132	_	9	171		-	64.5
Fort Frances	155	228,951.50	11,937	221	98	6	40	1,119	1,804	355		386	119	72	5	301.7
Geraldton	275	163,224.87	7,142	11	106	23	3,259	791	2,027	426	_	831	315	3	3	10.0
Gogama	62	48,445.37	1,895	39	33	30	1,031	312	1,262	149	4	199	81	9	_	34.0
Kapuskasing	163	203,691.61	9,543	24	163	45	2,960	920	1,946	382		270	306	15		128.2
Kemptville	466	115,094.14	4,115	1	82	5	and consenses.	255	39,735	32	401	108	192	33	2	29.5
Kenora	397	250,270.46	12,799	132	90	13	11	1,631	3,991	460	_	559	207	21		58.7
Lake Erie	386	90,528.59	_	_	143			350	80,095	_	1,455		19	6		-
Lake Huron	466	115,568.46	232	_	462		_	689	59,120	17	9,312	87	50	29	_	2.0
Lake Simcoe	338	80,688.36	2,174	12	139	2		569	28,934	20	1,651	65	32	36	-	39.0
Lindsay	480	168,191.60	7,185	313	102	9	28	537	29,204	129	748	180	48	58	6	·57.0
North Bay	145	114,590.25	5,223	156	252	75	59	760	5,677	217	19	208	60	58	5	151.5
Parry Sound	560	239,377.16	11,586	262	296	9	203	1,044	13,767	323	660	936	169	67	9	209.0
Pembroke	128	83,797.18	3,803	260	107	2	163	335	6,292	140	104	361	175	40	10	40.5
Port Arthur	353	185,230.11	8,903	153	428	30	1,461	706	3,314	319	anna-ve	468	226	78	7	145.2
Sault Ste. Marie	203	79,832.16	3,598	13	189	22	705	544	1,920	197		97	103	30	—	24.7
Sioux Lookout	95	58,022.65	2,779	23	16	6	317	344	908	143	_	526	128	23	12	49.0
Sudbury	264	155,492.99	7,589	92	380	39	5	572	6,378	306	90	266	108	191	17	122.0
Swastika	115	79,185.45	3,612	177	201	121	140	381	1,700	139		92	247	6	19	85.
Tweed	640	314,935.37	14,959	40	152	23	13	579	46,070	227	525	388	41	76	5	111.
White River	80	72,568.26	3,337	4	24	23	770	504	561	184		43	108	3	1	96.
Patricia Central	720	338,854.35	14,021	26	57	81	436	4,694	10,000	1,542		6,945	893	103	_	87.
Patricia East	236	142,527.19	6,467	9	14	23	225	567	11,799	548		655	184		2	150.
Patricia West	587	241,409.85	10,682	156	29	192	152	2,490	11,000	605		4,005	1,779	68	_	5.
TOTALS	7,497	\$3,719,301.50	160,278	2,189	3,672	912	13,977	21,272	369,848	7,204	14,970	17,758	5,791	1,045	103	2,130.
Total Values\$			2,699,081.52		29,045.52	2	89,592.57		366,149.52		67,365.00		1,563.57		2,083.6	9
\$				30,230.0	9 2	27,989	.28	212,932.7	2	168,357.	48	5,682.56		8,234.60	0	10,993.

PREDATOR MANAGEMENT AND CONTROL

Predators, like other forms of wildlife, are an integral part of the fauna and should be managed as such. Conrol programs are directed toward the removal of those inimals, mainly wolves, coyotes and bears, in areas where their presence has been determined as detrinental to the domestic livestock industry or to mainaining desirable population levels of other wildlife pecies.

During 1967, the Department staff investigated 57 intances of predation on domestic stock which required he establishment of control programs. As a result of hose programs, 33 coyotes, 14 timber wolves and nine pear were removed from the problem areas.

Predator control training programs were conducted in the forest districts of Lindsay, Parry Sound and Tweed Districts in which eighteen members of staff received intensive on-the-job training. Extension training workthops, held in conjunction with this program, were attended by 300 trappers and farmers throughout the districts.

Staff training and trapper extension programs will be onducted in the districts as required in the northern and central regions of the Province in 1968.

SOUNTIES PAID in years ending March 31

'ear	Timber	Brush	Pups	Total	Bounty
964	1,342	862	61	2,265	\$44,999.00
965	1,638	1,052	63	2,753	59,997.00
966	1,593	1,195	44	2,832	59,937.00
967	1,578	1,277	45	2,900	59,084.00
968	1,644	1,342	81	3,067	61,996.00

FUR FARMING

ABLE 27

The stimulus, created by the sharp rise in retail fur sales in the fall of 1967, resulted in the absorption of the backlog of the 1966 ranch-raised mink crop before the irst offering of the 1967 crop was made. The low prices baid for mink pelts in the depressed market last year nade possible the offering of mink garments at the most uttractive retail prices that have been witnessed in retent years. This opened a new consuming market or mink.

The brisk movement of inventory caused the trade o replenish their stocks at the initial sales in December. While the demand for most types of mink was strong, t was evident that the trade was not prepared to pay

prices in excess of those established in December sales last year.

Only fine-quality dark mink advanced 10 per cent. All other types declined from five to 15 per cent, with the Aleutian and Iris mink declining 25 per cent from the December, 1966, sales. This price structure was maintained until March when prices (particularly on the American market) increased from 10 to 15 per cent with a large turnover of goods recorded. By this time, however, some 90 per cent of the Canadian ranch mink crop was sold. This remarkable upswing, in the demand for virtually all types of mink, continued through to May when it was estimated that 85 per cent of the world mink crop was sold.

The spirited demand for pelts was not based solely on increased sales at the retail level, and it was all the more remarkable in view of the crisis which existed at the time in world monetary markets. With the gold and sterling problems and the possibility of devaluation of some of the European currencies, it appeared that the purchase of merchandise was preferable to money holdings. It was noted that most of the activity in the fur market was generated by European buyers who outbid their American counterparts for large quantities of pelts.

Heavy exports to Europe substantially reduced the volume of pelts that normally would be available to the trade in America. The voluntary cut-back in production (instituted by the mink associations in the Scandinavian countries in the spring of 1967) resulted in an estimated reduction of two million pelts from that source. These factors, coupled with the estimated 20 per cent decline in production in the United States from ranchers going out of business, caused fears of shortage of mink pelts before next year's crop is marketed. The American buyers, with renewed confidence in the mink business, were spurred into making heavy purchases of pelts in the remaining sales.

With virtually all of the 1967 crops sold at the auction and road-buyer levels, prospects for next season look bright.

As a result of a multitude of private Bills introduced in the U.S. Congress, asking for import quotas on mink pelts, the President asked the U.S. Tariff Commission in August to investigate the affects of mink imports on the American mink ranching industry. Any restriction on the free flow of mink pelts to the United States (which would also include wild mink) could only have bad effects on the ranching and trapping industries in this Province and Canada. A strong protest by Canada Mink Breeders was made before the U.S. Tariff Commission.

It is generally felt that, with the previous commitments made by the U.S. administration during the Kennedy Round of Tariff negotiations, it is unlikely that the American ranching industry will be successful in their efforts to obtain restrictive import quotas.

A record price of \$550 per pelt was recorded for the top bundle on the introduction to the New York trade of the new mutation called purple mink. None of the new mutation has as yet been produced by Ontario ranchers.

Ranch-raised foxes sold at prices approximately 15 per cent down from last year. The strongest demand was for the Standard Silver type which brought 15 to 20 per cent more than the Platinum and Pearl Platinum types. The small quantity of the Dawn-Glo fox, which was developed on an Ontario ranch, sold well at slightly better prices. While a profit is being made on fox ranching, expansion is limited due to the fact that the present price structure depends almost entirely on the current demand for this fur in Japan. For the past two years, this country has been an important buyer in the fox pelt market.

The incident of disease on Ontario fur farms was again minimal in 1967. Seven cases of distemper, five cases of plasmacytosis and one case of pseudomonas in mink were diagnosed at the Ontario Veterinary College. One of the cases of distemper killed some 2,700 mink on an unvaccinated ranch. This ranch was supplying mink for research purposes, which arrangement precluded their vaccination. This incident points-up the importance and the prudence of preventative vaccination. In the case of pseudomonas, some 675 mink died. This outbreak was controlled, however, by the use of a formalized autogenous bacterin prepared at the Ontario Veterinary College.

The Ontario Fur Breeders' Association held twelve regular meetings of the Directors, as well as the Annual Meeting and two special, general meetings of the members. A Field Day and a Live Mink Show completed the activities of the Association. Three delegates represented the Association at Canada Mink Breeders' annual meeting. A petition was made to the Federal Government for extension of Provisions of the Farm Credit Corporation Act to provide long-term credit to fur farmers. This was considered necessary in view of the low market prices received in the past two years and the difficulty in meeting capital expenditures from pelt returns.

A total of 477 Fur Farmers Licences were issued; of these, 442 were renewals of previous licences and 35 were for newly established ranches.

The total of breeding stock on mink farms was 234,369, an increase of 15,245 on the year. Breeding stock on fox farms numbered 498, an increase of nine on the year.

The following is the production of the various colour phases of mink nelts produced in Optario in 1967:

phases of mink peris produced in Ontario in 15	, , ,
DARK AND HALF BLOOD DARK MINK, in-	
cluding Bluefrost & Demi Buff	126,042
GREY TYPE such as Silverblu or Platinum, Sage	
Opaline, B.O.S. Stewarts & Homos	25,568
DARK BLUE TYPE such as Aleutian, Blu Iris,	
Steel Blu, B.O.S. Stewarts & Homos	19,217
LIGHT BLUE TYPE such as Sapphire, Winter-	
blue, Eric, Violet, B.O.S. Stewarts & Homos	68,357
BROWN TYPE such as Pastel, Topaze, Amber-	
gold, Buff, Dawn, Orchid, Capucine, B.O.S.	
Stewarts & Homos	309,937
BEIGE TYPE such as Palomino, Pearl, Lavender,	
Hope, Fawn, B.O.S. Stewarts & Homos	67,935
WHITE TYPE including 95% White	14,330
TOTAL PELTS	631,386

Field Services

The Unit is responsible for the principles of fish and game law enforcement programs in the province, keeping records of convictions and seizures, the disposal of equipment seized as evidence, the provision of in-job-training opportunities in law enforcement for conservation officers and other personnel, and for the organization and evaluation of a hunting licence examination system.

LAW ENFORCEMENT

The objective of law enforcement is to prevent fish and game law violations. This may be accomplished by impressing on the public the need to obey the regulations to ensure good fish and wildlife management. Where education fails to produce the desired results, prosecution is necessary, and high standards of law enforcement are essential to successful prosecution. Recognition of the rights of the individual, as compared to the value and future welfare of natural resources to society, must be appreciated.

Legislation and regulations provided under The Game and Fish Act, 1961-62, have for the most part been consolidated in summary form for public distribution, together with maps, information and open seasons: the regulations are explained in simple terms. The summary of the hunting laws and seasons have found popular acceptance by the public, surpassing the demand for copies of The Game and Fish Act. Publication of the latter has been reduced from 70,000 copies to 20,000.

TABLE 28 SEIZURES AND CONVICTIONS

	130	JJ- U4	100	1 03						
Number of Seizures		,508 ,276 68	,	216 236 95	2,5 2,3		2,94 2,63		3,40 3,23 10	19
(Under Migratory Bird Regulations)		18		19		30		58	Incom	olete
TABLE 29 WITHOUT A LICENCE (C	CONVIC	CTIONS)								
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			100	A 165	106	5-'66	196	6-'67	1967	7-'68
		3-'64 º/o		4-′65 º/₀	No.			°/ ₀	No.	0/
Activity		uency		uency		uency		uency	Frequ	ienc
Fishing without Licence Hunting without Licence . Trapping without Licence .	146 382 24	6.4 16.8 1.5	145 439 19	6.6 19.6 0.9	106 360 6	4.6 15.3 0.2	204 443 5	7.7 15.9 1.2	178 467 14	14 23 41
	552	24.7	603	27.1	472	20.1	652	24.8	659	20
TABLE 30 VIOLATIONS, 1967-68										
1. Angling with more than	two line	es								2

1964-'65

1963-'64

1966-'67

1965-'66

1967-'68

Angling with more than two lines	2
Taking fish by means other than angling	1
Taking fish during closed season	
	1
1 USSESSION UI SPERI	4
Miscenaneous, metuding fishing without needee	
TOTAL, Fishing Violations	1,1
Possession of loaded firearms in vehicle	4
	2
	1
Possession of game in closed season	
Hunting without licence	9
Trapping without licence	
TOTAL, Hunting Violations	2,0
TOTAL VIOLATIONS	3,2
	Possession of overlimit of fish Taking fish by means other than angling Taking fish during closed season Possession of fish during closed season Possession of spear Miscellaneous, including fishing without licence TOTAL, Fishing Violations Possession of loaded firearms in vehicle Hunting during prohibited hours and jacklighting Possession of loaded firearms in motor boat Hunting in closed season Possession of game in closed season Hunting protected birds Miscellaneous, including: Hunting without licence Trapping without licence Trapping without licence Total, Hunting Violations

Distribution of the Hunting summary is in the order of 00,000 copies and expected to increase.

Articles seized as evidence become the property of he Crown upon registration of a conviction under The same and Fish Act. Items are also seized for evidence nder The Migratory Birds Convention Act and the egulations and The Ontario Fishery Regulations. The finister may grant relief from forfeiture upon such terms as he deems just, and many items are restored to neir former owners. Seizures, which remained the roperty of the Crown were sold at public auction in the amount of \$13,261.50.

Law enforcement everywhere is becoming more comlex, and fish and game law enforcement is no excepon. It is no longer sufficient to provide a woodsman ith a book of rules and a uniform and expect him to rotect our natural resources in the fields or in the law ourts. To meet the needs and demands of a greater nowledge of the law, courses were provided on an inb-training basis for Conservation Officers as well as fficers whose responsibilities involve law enforceent in forest protection, parks and accident control. In the past year, fifty-eight officers attended twoeek courses at Dorset or Nym Lake for fish and wildfe law enforcement training. In addition, twenty-six pervisors and officers attended the Ontario Police ollege at Aylmer where they received instruction in vidence, power of arrest, procedure in arrests, The anada Evidence Act, The Game and Fish Act, The sheries Act, The Ontario Fishery Regulations, The ligratory Game Birds Convention Act and the regulaons and summary procedures prescribed in The riminal Code and The Summary Convictions Act.

IUNTING LICENCE EXAMINATIONS

urther regulations were passed during the year making mandatory for all persons under 20 years of age to emplete a hunter training course before applying for hunting licence examination. Although this training not compulsory for persons of 20 years of age and ver, the Department strongly recommends it for all ew hunters.

The original system of issuing "certificates of cometence" (which allowed a person to purchase a hunting licence) became obsolete on December 31, 1967. hus, during the year, there were two programs allowing the purchase of hunting licences.

During the year, new hunters were processed as ollows:

y examination	У	training	cour:	ses	 ٠									16,500
	Y	examinat	tion					,			-			3,000

Total: 19,500



A conservation officer travels by snowmobile and snowshoes in winter, Lindsay Forest District.

TABLE 31

LAW ENFORCEMENT TRAINING

YEAR	LANDS AND FOR Conservation Officers	Other	ONTARIO PC Conservation Officers	Other	COURSES Total
1964-65	114	_	16	6	136
1965-66	67	31	13	9	120
1966-67	29	74	13	5	121
1967-68	20	38	16	10	84
TOTAL	230	143	58	30	461

FISHERIES SECTION

Fisheries Section is responsible for the application of the principles of full, multiple and public use on a sustained yield basis to the fishery resources of the Province. The application of these principles involves an understanding of the resources and the organization of programs for their optimum harvest.

Progress in reaching these objectives in the fiscal year was characterized by changes in emphasis of the program and alterations of responsibilities of staff, rather than progress in obtaining additional staff and money for new or broader programs.

Some progress in the development of a Bay of Quinte-Lake Ontario Fisheries Management Unit, through the appointment of a biologist, was made. Three new conservation officer positions were provided, and two of these filled voids in two Districts as fisheries management officers.

Adjusting oxygen flow into tank of splake fingerlings for shipment from Southern Research Station to Codrington Hatchery.

The Sport Fisheries and Hatcheries Unit further refined angling seasons, uncomplicated regulations, and provided public information earlier and more effectively to continue the progress made the previous year. A sports and commercial fish harvest assessment was greatly enlarged on Lake Superior, Lake St. Clair, Lake Temagami, Bay of Quinte and Rainy Lake.

The Commercial Fisheries Unit adjusted staff to provide the statistical program with greater integration of biological and economic data, and to further decentralize the whole program to the field level, thereby providing more enforcement and biological integration in the statistical program. Reduction in fishermen and expansion of fisheries progressed in 1967.

Two Federal-Provincial programs were initiated: one providing Ontario fishermen with vessel and gear insurance at low cost, and the second providing industrial development through co-operative federal-provincial-industrial agreements.

The Inventory Unit program underwent a period or refinement and sophistication of technique. The improved data and increase in productivity were the spoils of this period.

The Indian Resource Development program tender to become more involved with the development of the Indian people in tourist harvests of the resource, and less in research or inventory.

Sport Fish and Hatcheries

Management, development and promotion of the sports fishery are the responsibilities of this Unit. The accomplish these objectives in conjunction with field staff, Unit personnel are involved in the planning and coordination of programs to assess the fishery and indegree of utilization by anglers; to determine the effect tiveness of fish plantings; to establish angling seasor and regulations and to test their validity; to initiate habitat improvement projects including lake reclaims tion and stream improvement; to study fisheries problems and to evaluate remedial action; to provide public access to natural waters and to acquire and development of the sports fishery.

An extensive hatchery program involves productio control and distribution of fish stocks, modernization of the hatchery system, and the application of new fiscultural techniques.

FISHERIES MANAGEMENT UNITS

Lake of the Woods: The past year was the sixth of long-term study on Lake of the Woods, and emphas was placed on the making of a quantitative angler cre census record. The census schedule was stratified time and area to ensure that adequate and represent tive data were collected.

Beginning on May 15th and terminating on Septemb 30th, the census data showed that anglers took a call call call total of 626,995 fish, weighing 777,187 pound Anglers averaged 5.8 hours on the lake per fishing the and took 0.85 fish per hour. Walleye accounted for 8 per cent of all fish taken by anglers and made up 82 per cent of the total poundage. Northern pike represente five per cent of the catch and smallmouth bass four per cent. The census revealed that 87 per cent of the anglers were of U.S. origin.

Rainy Lake: The work carried out on Rainy Lake during 1967 was primarily a continuation of the 1966 program. Investigations were conducted on all stages



natural walleye recruitment and included studies of dult spawning stock, spawning areas and incubation periods, and the development of fry and fingerlings.

In addition, an intensive creel census was carried out n Red Gut Bay, where anglers harvested a calculated otal of 16,231 pounds of walleye. The majority of the atch consisted of three-year-old fish averaging 0.78 bounds in weight. Despite the small, average size of the ish, most anglers were pleased with the success rate of 0.56 fish per man-hour of fishing.

Temagami-Nipissing Unit: One of the major activities of the Temagami-Nipissing Fisheries Management Unit, established in 1966, has been the collection of creel tensus information. In the summer creel census of 1967, the was revealed that 2,225 anglers fished 5,042 management for a catch of 640 fish, or a return of 0.12 fish per pour of fishing.

Unit personnel inspected catches of lake trout for vidence of fin-clipped specimens which have been planted annually since 1961. To date, only five marked pecimens have been recovered from a total stocking of 62,500 yearling trout. However, as the majority of the fin-clipped trout have not yet entered the fishery, lue to their small size, no conclusions can be drawn.

In 1967, the unit's activities were expanded to inlude Lake Nipissing. Some basic limnological work vas initiated in 1967, and an extensive creel census program is planned for 1968.

Tawartha Lakes: The three-year trap-netting project, nitiated on Rice Lake in 1966, was continued in 1967. Approximately 3,000 fish, consisting of walleye, bass and maskinonge, were sampled, fin-clipped and reeased. Evidence of prominent year classes of walleye, produced from the spawning runs of 1957, 1959 and 1963, was observed.

Another program of special interest was the construcion of gravel spawning beds below the dam at Bobaygeon to determine if natural recruitment of walleye ould be increased. The results of the 1967 experiment were most encouraging. Hundreds of walleye were observed on the treated areas, and 9.8 times more eggs were found on the new facilities than on the natural iver bottom.

ake Simcoe: Emphasis in 1967 was placed on the making of a summer and winter creel census record, based on a new sampling procedure established in 1966. In his regard, specific areas for yellow perch, northern pike, lake trout and bass were selected and sampled. The data from the winter census showed a fishing pres-

sure of 371,839 man-hours and a total catch of 207,010 fish, of which 111,794 were whitefish.

The Unit staff also took part in the annual trap-netting program for the collection of lake trout eggs. During this project, lake trout were fin-clipped to study their movements and homing behaviour.

A survey of boat launching facilities on Lake Simcoe was conducted in 1967 and it revealed that 90 sites were available. A further analysis of the data showed that 40 were operated commercially with a \$1.00 fee; 50 were public sites with no charge; 31 could handle large boats; 36 had gasoline for sale; 20 offered boats for rent; 27 had bait for sale; 47 provided ample parking; 41 utilized roadside parking, and two had no parking facilities. This information was expanded and printed in pamphlet form by the Lake Simcoe district office and this was made available to the general public.

Georgian Bay: A six-year trap netting study of walleye in Shawanaga Bay and the Groundhog Shoal area was terminated in 1967. During the study, a total of 5,923 walleye were tagged and released. Of these, 3,535 were recaptured and provided important information on the movement of walleye between the two study areas. The Groundhog Shoal area is open to commercial fishing while Shawanaga Bay is fished by anglers only. The purpose of the study was to determine if anglers and commercial fishermen were competing for the same fish.

Data from the study revealed that two fairly discrete walleye populations existed, and that there was no serious competition between anglers and commercial fishermen. The record showed that a yearly average of 4.2 per cent of the recaptured walleye had moved from the Shawanaga spawning area to the Groundhog Shoal.

Bay of Quinte and Eastern Lake Ontario: In the spring of 1967, the Bay of Quinte and Eastern Lake Ontario were set up as a fisheries management unit under the direction of a biologist.

The initial phase of this study involved a review of research and management work already carried out, familiarization with the area, and the preparation of a management plan and specific work program for the year. During the summer of 1967, the new unit assumed responsibility for conducting the creel census on the Bay of Quinte, the monitoring of some fish stocks, and an evaluation of the effectiveness of commercial fishing gear.

A comparison of the 1967 creel census data, with that obtained by research in previous years, showed that the angling fishery in the western end of the Bay of Quinte

has remained stable, whereas a declining fishery was noted in the remainder of the Bay.

SPECIAL PROJECTS

Talbot River Walleye: The spawning run of walleye, in the Talbot River below the Canal Lake dam, continues to be impressive. Co-operation with the Department of Transport, in controlling water levels in the Talbot, has provided adequate water levels for the natural incubation of spawn deposited in the stream. Spawn collected from this site is used primarily to cover the exchange of walleye eggs for Kokanee eggs from Montana and Colorado, and for the experimental culture of walleye fingerlings at our White Lake hatchery.

Bark Lake: This ten-year project was initiated in 1965 to determine the effect of severe water-level fluctuations on the natural reproduction of lake trout. To date, some 400 adult lake trout have been tagged to determine population size and movement patterns. The stocking of 15,000 marked lake trout yearlings annually, over a five-year period, is planned to determine the relationship between the success of natural reproduction and the severity of water-level fluctuations in specific years.

Lake Superior: Lake Superior remained closed to angling for lake trout except under the authority of a licence, issued free of charge and valid for a period of thirty days. This regulation was established to facilitate the management of the important lake trout fishery. Accurate assessment of the total catch by anglers and commercial fishermen is necessary to manage the fishery on a quota basis. A total of 3,116 special licences were issued in 1967 and the reported catch was 1,266 lake trout.

Assessment studies in Canadian and United States waters of Lake Superior were encouraging. Significant improvement was observed in the survival of natural stocks of lake trout, particularly in the more open water area of the lake, and in the establishment of hatchery stocks planted in the more accessible inshore areas.

Lake St. Lawrence: Trophy-sized maskinonge, 30 to 54 inches in length and weighing up to 40 pounds, were captured and released during a trap-netting program in May and early June. The project was exploratory in nature, and the nets were moved frequently to sample the fish populations along some thirty miles of shoreline. The purpose of the study was to locate game fish populations, to determine how they could be captured most readily for assessment purposes in the future, and to determine the relative abundance of species at various locations.

In addition to 60 maskinonge, other sport fish taken included 542 pike, 582 smallmouth bass, 55 largemouth bass and eight walleye. Many of the fish were tagged (to provide future data on movements and growth) before being returned to the water. Total lengths, weights and scale samples were also taken. The survey revealed that Lake St. Lawrence also contains extensive populations of bullheads, black crappie, perch and suckers, and smaller numbers of rock bass and white bass.

Mishibishu Lake: In 1958 and 1963, introductory plantings of lake trout of Lake Superior origin were made in Mishibishu Lake in an effort to perpetuate the declining stock. Early in the program, it was found that, although the plantings had been successful, the trout were feeding primarily on plankton, and natural reproduction was quite limited. In an effort to increase the growth rate and, hence, egg size and numbers, some 4,000,000 eyed herring eggs were planted in Mishibishu Lake in 1966 and 1967 to establish a herring population which would provide year-round forage.

A follow-up assessment of these plantings gave rise to optimism as some herring were recovered. However, it will probably be several years before any measurable effect on the lake trout population can be noted.

PUBLIC FISHING AREAS

To meet the increasing demand for more outdoor recreational areas, the Department continued to expand its public fishing area program in 1967.

The Nine Mile Road Quarry Pond near Cornwall was acquired and treated with a fish toxicant to eradicate undesirable species. It will be stocked with trout in the spring of 1968 to complement the already popular areas at Mount Pleasant, Earl Rowe Provincial Park, St. Williams Forest Station, Normandale, and Pinery Provincial Park. These ponds are stocked periodically with

catchable-size fish throughout the fishing season; they are open to the public free of charge.

The most popular site is still the Mount Pleasant Public Fishing Area. In 1967, more than 31,500 anglers visited this site during the 20-week trout season. They spent a total of 85,506 angler-hours to catch 23,987 fish of which 6,535 were rainbow trout and 17,452 were brook trout.

LICENCES

For the first time, total revenue from the sale of angling licences exceeded three million dollars. This represents an increase of slightly less than one per cent over the angling licence revenue for 1966.

A second group of licences, which may be classed as "sport" or "domestic", is not included in the angling or commercial categories, but it is quite interesting from a management standpoint. The domestic dip-net licence permits the harvesting of whitefish and herring by means of a dip-net during the months of October, November and December from the waters specified in the licence. An angler's bait-fish licence authorizes an angler to use a small seine net in specific waters to take bait-fish for his own use. In 1967, the privilege of shooting carp with a bow and arrow, in specific areas, was included with the non-resident smelt licence. The popularity of this group of licences is increasing gradually, and comparisons are noteworthy.

Type of Licence	Number of Licences Sold						
	1963	1967					
Non-resident Smelt	3,500	5,171*					
Resident Smelt	4,500	5,706					
Angler's Bait-Fish	230	520					
Domestic Dip-net	81	425					

^{*}includes non-resident bow and arrow fishermen.

SALE OF ANGLING LICENCES

Type of Licence	Quantity 1964	Quantity 1965	Quantity 1966	Quantity 1967
Non-resident Seasonal Non-resident 3-day Non-resident Organized Camp Resident Provincial Park	100,121 4,530	403,894 122,219 7,041 12,638	409,539 151,373 10,541 12,805	411,768 156,493 10,550 13,120
Resident Provincial Park Organized Camp	281	344	444	446

ANGLING REGULATIONS AND SUMMARY

Although no major amendments or changes in formal were made in 1967, several progressive steps were taken. Of note was the establishment of opening dates for angling on a first, second, third or last Saturday of the month, rather than on a specific calendar date. These opening dates were set out in Schedule 3 of the Ontario Fishery Regulations and will enable interested persons to determine opening dates well in advance.

On the Summary, map areas were renumbered from one to twenty-five, beginning at Lake St. Clair and end ing in the Hudson and James Bay lowlands. Some mino adjustments in the boundaries of map areas were made on the basis of uniformity in the fishery and the need for consolidation. The official common name for *Stizo stedion vitreum vitreum* (Mitchell) was changed from yellow pickerel to walleye in the Ontario Fishery Regulations and in the Summary.

NETTING CREWS

The function of the netting crews, headquarters a Maple and Port Arthur, is to provide impounding gea (mostly trap nets) by construction and repair for projects in the field. In addition, netting crew staff assist district personnel in the carrying out of numerous netting projects each year and, in specific cases where larg nets and special gear are required for deep water fishing, they actually set and operate the equipment. Trap netting demonstrations for the benefit of commercia fishermen in northwestern Ontario, particularly, constitute another aspect of the work.

In 1967, the staff at Maple actively participated in the collection of walleye and lake trout eggs for hatcher purposes, and live fish of numerous species were provided for display at the Canadian National Exhibition and the Sportsmen's Show. A major, exploratory netting project was carried out successfully on Lake St. Lawrence, and field staff were assisted in numerous project in the forest districts of Tweed, Lindsay, Parry Sound North Bay, Kemptville and Swastika.

The Port Arthur staff conducted two demonstration of impounding gear to commercial fishermen on Lak of the Woods and assisted in the collection of lak trout eggs in the White River district. The staff also paticipated in fish surveys, fish tagging and fish transferojects in the forest districts of Port Arthur, Sion Lookout, Geraldton and Fort Frances.

PROVINCIAL FISH HATCHERIES

The artificial propagation of hatchery fish for restocking public waters is one of the three basic tools of mode

sheries management. The other two are the regulation of the harvest and the manipulation of the habitat. Thirteen fish species were cultured by the Province luring 1967. The list included brook, rainbow, aurorand lake trout, hybrid splake, kokanee and coho salnon, whitefish, lake herring, maskinonge, walleye, and argemouth and smallmouth bass.

Sixteen hatcheries were operated in thirteen forest listricts during 1967. North Bay hatchery, located at alsam Creek, was inoperative pending its complete enovation. Little Current, which had been in partial peration for several years, was closed in keeping with a Department plan to conduct all fish cultural activities in Manitoulin Island at the Sandfield hatchery. A new eep-water intake, installed at Sandfield in 1967, will rovide more suitable water temperatures for rearing rout.

The construction of six large earthen ponds at Chatsworth was initiated, and these additional facilities will be used in 1968 for the production of hybrid splake estined for the rehabilitation of the Lake Huron shery.

Seventeen Department employees were graduated from a three-week course in fisheries management iven at the University of Guelph. This course is held a high regard by the Department for the upgrading of ersonnel in the field of fish culture and fisheries management.

The first spawn was taken from the selected hybrid plake brood stock being held at Codrington hatchery. lowever, production of eggs was low, due to the early ge of the fish. As the adults mature and with additions this brood stock, production will be increased until the required half-million yearlings can be reared for tocking in the waters of Lake Huron and Georgian Bay.

Kokanee salmon eggs were imported from Colorado nd Montana to augment the introductory plantings of 964. Strong spawning runs from this initial planting ere witnessed in the Manitou River and Bluejay Creek n Manitoulin Island and at Colpoy, Oxenden and Villow Creeks on the Bruce Peninsula. Spawn was aken to determine the viability of the eggs from the flanted stock.

Lake trout eggs were also received from Clearwater Atikameg) Lake, Manitoba. In exchange for this spawn, lanitoba was provided with brook trout eggs and laskinonge fry.

Following the outstanding success of Michigan's lanting of coho salmon in the upper Great Lakes, 00,000 coho eggs were imported into Ontario and

incubated at the Chatsworth Trout Rearing Station. These fish will be released as smolt-size fish in the spring of 1969.

In addition to fish produced for public waters, Ontario provides fish for other agencies on an exchange basis and also for research purposes within the Province. In 1967, some three million walleye eyed-eggs were exchanged for kokanee eggs from Colorado and Montana. A further exchange for kokanee eggs included a shipment of two million brook trout eyed-eggs to British Columbia and 20,000 splake eggs to Colorado. The Manitoba government provided Ontario with 200,000 lake trout eyed-eggs in exchange for 100,000 brook trout eyed-eggs and 50,000 maskinonge fry supplied by Dorion and Deer Lake hatcheries, respectively.

Other agencies were provided with approximately 646,500 fish (including 500,000 whitefish eyed-eggs),

ranging from green eggs to yearlings, for research and educational purposes. Such programs varied widely and included studies of the effects of atomic radiation, chlorinated hydrocarbon pesticide analyses, population dynamics, behaviour, physiology, and the sea lamprey control program.

Ontario's commitment to the International Great Lakes Fisheries Commission for the rehabilitation of lake trout in Lake Superior is 500,000 yearling lake trout annually. These fish were provided by Dorion and Tarentorus hatcheries.

In addition to producing fish, our hatcheries host an estimated 100,000 visitors each year. In 1967, there were 90 organized tours to the Normandale Trout Rearing Station; in one tour 20 buses delivered 900 school children. In total, an estimated 20,000 people visited this station in 1967.

Rainbow trout rearing tanks, Normandale Hatchery.



FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1963 TO 1967

6		Numb	er of Fish Pla	nted	
Species of Fish	1963	1964	1965	1966	1967
Bass, Largemouth Fry Fingerling Adult	45,000 72,550	112,000 90,650 —	81,000 107,500 —	41,500 147,000 —	67,500 75,000 260
Bass, Smallmouth					
Fry Fingerling Adult	134,000 287,700 316	52,000 239,450 290	58,000 230,700 165	36,200 215,500 160	98,000 211,950 178
Grayling, Arctic Adult		275	amendaria.		_
Herring Eyed Eggs Fry	_	_		1,150,000	7,030,000 2,000,000
Cokanee Eyed Eggs Fry Fingerling	 	 	683,300 1,608,344 287,680	923,200 942,911 —	310,000 385,000 211,000
Maskinonge Fry Fingerling Yearling Adult	1,870,000 27,150 —	1,530,000 26,300 —	1,850,000 24,600 15	1,303,112	2,650,000 12,000 — 195
Salmon, Atlantic Fry Yearling Adult	1,250 4,520 —	15,400 — 106	_ _ _	anaman Anaman Wanan	
Splake Eggs Fingerling Yearling 2-Year Olds Adult	 114,100 2,400	 87,650 11,645	 21,200 15,700	 69,000 44 	20,000 1,180 118,547 10,230
Sturgeon Adult	_	_		_	3
Trout, Albino Brook Yearling	5,303	3,873	4,380	_	12,861

Species of Fish	Number of Fish Planted				
	1963	1964	1965	1966	1967
Trout, Albino Brook (continu 2-Year Olds			_	_	1,
Trout, Aurora					
Fry		582		_	-
FingerlingYearling		682	4,000		
Trout, Brook					
Eyed Eggs		400,000	673,900		2,741
Fry		8,000 505,750	600,275	480,490	1,125
Fingerling		1,725,755	1,818,891	1,599,092	1,654
2-Year Olds		111,920	69,216	28,895	52
Adults			_		40
Trout, Lake					
Eyed Eggs		20,000	_	11,000	50
Fry		690	224,800	11,900 395,081	328
Fingerling Yearling		981,806	826,865	1,335,830	1,29
2-Year-Olds		535	9,340	312	12
Adults		- Agents-Age	_	_	
Trout, Rainbow					
Eggs				100,000	4!
Eyed Eggs			65,000	100,000	63
Fry		140,500	11,750	30,820	8
Fingerling Yearling		318,890	269,285	125,510	14
2-Year Olds		14,553	62,750	10,000	29
Adults					13
Walleye				40.000.000	10.05
Eyed Eggs	. 7,200,000	14,000,000	15,600,000	10,000,000	13,05
Fry	11,440,000	1,353,000		8,232,000	4
Fingerling		_			7
Whitefish					
Eyed Eggs	. —	-	_	advanture.	30
Fry	.46,350,000	27,090,000	24,030,000	19,845,000	24
Total	72,022,035	48,842,302	49,294,311	47,023,557	63,11



Sportsman and son with guide (left) prepare to try luck on a fly-in lake, northern Ontario.

ISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1967

Hatchery	Brook Trout	Lake Trout	Rainbow Trout	Largemouth Bass	Smallmouth Bass	Maskinonge	Whitefish	Walleye	Splake
hatsworth	44,060 Fg 182,971 Y 28,048 A	11,307 Y 12,600 2Yr	60 Fg — —		_		_	_	
odrington	500 Fg 15,000 Y 5,300 A	_	700 Fg	_	destrones	_		_	1,180 Fg 1,677 Y
eer Lake	, 36,000 Y	— 99,500 Y	450 Fg 15,880 Y	260 A	_	2,650,000 Fry 12,000 Fg 195 A		200 A	_
orion	2,000,000 EE 438,562 Fg 33,825 Y 3,411 A	3 Fg 272,800 Y	16,000 Fg 26,670 Y	Magazina.		_	_	_	

continued

FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1967 (continued)

Hatchery	Brook Trout	Lake Trout	Rainbow Trout	Largemouth Bass	Smallmouth Bass	Maskinonge	Whitefish	Walleye	Splake
Hill's Lake	441,000 EE 294,000 Fg 352,312 Y 50,750 2Yr	50,000 EE 145,262 Y 73 A 141 7Yr 169 8Yr 22 9Yr	6,000 Fry 59,800 Fg 7,000 Y	_	_	_	_	_	-
Little Current		_	_	_	_		300,000 EE 240,000 Fry		_
Midhurst	41,150 Y 1,250 A				_	_	_		
Normandale	9,915 Y		45,000 E 631,500 EE 10,800 Fg 28,300 Y 29,500 2Yr 5,300 3Yr 8,300 A	_			_		-
Pembroke	50 Fry 97,332 Fg 166,384 Y 2,711 A	100 Fg	_	_	_				_
Port Arthur	_	171,740 Fg	_			**************************************		_	_
Sandfield	188,300 Y	_	12,000 Y	_	98,000 Fry 55,500 Fg 178 A	_	_	_	_
Skeleton Lake	308,600 Y	111,000 Y	12,000 Y		75,000 Fg	_	_	_	
Tarentorus	300,000 EE								20,000 EE
	15,000 Fg 295,350 Y 1,720 2Yr	599,000 Y	10,000 Y		-		_	_	116,870 Y 110,230 2Y 13 A
Westport	20,550 Y	53,100 Y	1,000 Y	46,500 Fry 21,000 A Fry 75,000 Fg	81,450 Fg	_	_		_

ISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1967 (continued)

Hatchery	Brook Trout	Lake Trout	Rainbow Trout	Largemouth Bass	Smallmouth Bass	Maskinonge	Whitefish	Walleye	Splake
Vhite Lake	236,000 Fg 3,825 Y	91,600 Fg	35,000 Y	_	_		—	11,000,000 EE 28,000,000 Fry 41,656 Fg	december
Viarton	_	65,000 Fg	_	_	_		Grayerman		
OTHER SPECIES:	1,093 Albin 1,000,000 Herr 1,000,000 Herr 7,030,000 Herr 211,000 Koka 300,000 Koka 1,500 Koka 129,500 Koka 10,000 Koka 3 Sturg 955,000 Wall 1,099,800 Wall	no Brook trout yed no Brook trout 2-ying fry planted in ing fry planted in ing eyed eggs tran anee fingerlings planted in anee fry planted in anee fry planted in anee swim-up fry anee eyed eggs planted in eye eyed eggs tranteye eyed eggs tranteye eyed eggs tranteye	vear-olds planted Chub Lake from Jobam Lake from Isferred to White lanted in Lake Orn Lake Huron from Lake St. Lawrer planted in Georganted at Glenora Isferred to Colo	d in Swastika Di Port Arthur Ha n Port Arthur Ha e River District f uron from Chats stario from Wia m Sandfield Ha nce from Westp gian Bay from W Research Static rado from Glen tana from Glenc	strict from Hill tchery. atchery. from Port Arthisworth Hatcherton Hatchery. ort Hatchery. //iarton Hatcheron in Lake Ontagon from Westpora Research S	's Lake Hatcher ur Hatchery. ry. ario from Chatsv ort Hatchery. tation.	, worth Hatchery	y.	
		- Eyed Eggs	Fg — Fingerling Y — Yearling	igs 3Yr —	- 3-Year-olds - 7-Year-olds	9Yr — 9-Yea	r-olds		

Commercial Fish Unit

ne responsibilities of the Unit include licencing comnercial fisheries; setting seasons, quotas and other terms for fishing; collecting and compiling statistics on shing effort and catch; initiating and directing prorams by which changes in fish stocks can be moniored; promoting new fisheries where conditions are uitable; and assisting in the development of better atching, handling and processing techniques and arketing procedures.

ICENSING

ommercial fishermen are finding it necessary to prouce more fish at less cost to keep the price of their roducts competitive in the food market. However, for his to occur in many areas of the Province where the eld of fish has reached the maximum sustainable level, here must be a trend toward fewer and more efficient sheries. Licensing policy, therefore, is aimed at iminating redundant fishing units. In 1967, the number of commercial fishing licences, enabling fishermen to take fish for human consumption, was reduced by 75, or 4.1 per cent. A reduction of 170 licences, or 8.6 per cent, also occurred in the number of licences issued for the taking of bait fish.

To provide for expansion of fisheries and greater efficiency of operation, two changes were made in licensing practices and policy. Fishermen employing hoop nets were granted the privilege of converting any two hoop nets into one double net. In some situations, this will enable more fish to be taken with less effort. In the case of Lake St. Clair fisheries, provision was made for the expansion of fishing enterprises through the process of amalgamation by eliminating a limit on the units of gear which may be fished under a licence.

TICHERMEN'S INDEMNITY PLAN

The fishermen's Indemnity Plan, through which marine fishermen have been securing low-cost vessel insurance, was extended to Ontario fishermen in 1967 with the co-operation of the Department.

While the Plan was put into effect by the Department of Fisheries of Canada, the Department of Lands and Forests has arranged to take an active part in its administration in Ontario. Provincial Officers are serving as the field agents, and in this capacity receive applications and premiums, make appraisals, and investigate claims.

Under the Plan, vessels valued at between \$250.00 and \$25,000.00 can be insured against loss from fire, or from the usual perils of the sea, for a yearly premium not exceeding 2% of the value. Shore installations, such as net sheds and boat houses, and any gear stored in them, and any fixed fishing gear in the water, likewise, can be insured.

RISHERBS DEVILOPATE PROVEDUS

Activity by the Commercial Fish Unit in the sphere of fisheries development increased in 1967 with the implementation of two significant Federal-Provincial cost-sharing projects.

In Lake Huron and Georgian Bay, an experimental trawling project was carried out with the object of locating and assessing exploitable concentrations of chubs (deep-water ciscoes) and alewives and determining if a trawl fishery for these species would be physically and economically feasible. Trawling, as a means of reducing labour costs, was being considered by Lake Huron fishermen.

To accomplish the work, a Lake Erie trawler, complete with modern fish-finding and navigational aids and crew, was hired. Operations extended from June 1 to November 30, 1967; during that time, the waters of Lake Huron east and south of Manitoulin, including much of Georgian Bay, were explored and fished.

Findings indicated that while trawling is physically possible in some areas of the lake, quantities of alewives and chubs were not discovered in sufficient concentrations to support a commercial trawling operation. As a result, fishermen have decided not to invest in trawling gear until further investigational work can be carried out.

A second project involved a study of the technical and economic aspects of operating a small reduction plant for the production of dry fish meal. The investigation is being conducted to develop a means of utilizing processing wastes and coarse fish produced by the fishing industry on Lake Erie. The results, however will be of considerable value in determining the worth of such a plant to other segments of the Ontario fishery. The Department of Lands and Forests, together with the Department of Fisheries of Canada, therefore, is providing financial support to obtain detailed information from the industry on the operation of the plant and cost-benefit analyses.

Courses of instruction, in fishing techniques, gear maintenance and the care and handling of fish, which have been provided to Indians in Northern Ontario under the Federal-Provincial Resources Development, were continued in 1967. Benefits are seen in improved efficiency, higher quality products, and better prices to fishermen.

An extension service was maintained in 1967 to assist the bait-fish industry in the solution of problems connected with the culture, handling, holding and transporting of bait fish. A fish culturist was active, and his efforts effective in this respect. Specific problems were dealt with, and considerable general information was conveyed. A pamphlet on fish diseases, their prevention, and their treatment, was prepared and circulated.

THE COMMERCIAL FISHERY

The commercial fishing industry in Ontario produced nearly 53 million pounds of fish, valued at over 5.9 million dollars in 1967, and in doing so created employment opportunities for nearly 22 hundred men. While the number of licensees declined, the amount of invested capital increased, reaching 10.6 million dollars. The industry continues to modernize, and in the past year a number of new vessels, equipped with highly sensitive fish-finding equipment, were added to the Lake Erie fishing fleet.

The bait-fish industry continued to strengthen in 1967 and to improve its service to anglers across the Province. The establishment of further ponds, for culture and holding purposes, extended the period of supply, and technical advances improved the quality of fish sold. Sales totalled approximately \$1.7 million dollars, an increase of 22 per cent from the previous year.

PROJECTS

Concern over the effect of hydro-electric power installations, on the movement of American eels up the St. Lawrence and into Lake Ontario, led to a project at the Robert H. Saunders Dam at Cornwall, Ontario, in 1967. A total of 1,056 eels were captured by seining in passage-ways of the dam over a two-day period in August. These were later differentially marked and released at two points, one above and the other below the dam. The recovery of any of these fish by commercial fishery in Lake Ontario will provide insight into the influence of the dam on upstream movements.

Much can be learned, concerning the dynamics of fish populations, by examining catches and noting the amount of fishing effort required to produce those catches. The kind of information obtained is of considerable importance to those who regulate the fisheries, and for this reason the Department has embarked on a program of commercial catch sampling.

Sampling projects were carried out on all Great Lake waters and a number of inland waters, extending from the Rideau chain to Rainy Lake, in 1967. While effort was concentrated on whitefish, walleye and lake trout, measurements and scale samples were taken for a wide range of species.

MARKETING AND PRICES

The commercial fishery was faced by generally lower market prices during 1967 but with gradually increased costs in materials and labour. The weak market for freshwater fish was in part related to large inventories of fish from the saltwater fishery and to the change in certain religious dietary rules.



Lifting a section of cott end, full of herring, into bo Lake Superior.

Action by the Fisheries Prices Support Board help maintain yellow perch prices at ten cents per pound fishermen but by the end of the year relatively land inventories of this species were in storage.

The Department continued to work actively we Federal-Provincial committees studying the feasibit of a Federal-Provincial freshwater fish marketing at thority for a large region of central Canada. The Grakes fisheries were not included in this planning cause of the great difference in both species a marketing patterns between these fisheries and the of the inland lakes of northern Ontario and the praprovinces.

Plans were made to acquaint the fishermen of nor ern Ontario with all of the details of the market plans as they are developed. It is felt that a w informed fishery is one of the necessities to any s cessful, future marketing organization.

atistics of the Fishing Industry in the public waters of Ontario for the year ending December 31st, 1967

UANTITIES OF FISH TAKEN (in pounds)

ecies	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Channel	Lake Superior	Northern Inland	Southern Inland	Total Catch	Total Value
owfin	5,718	11,967	_		_		_	_	1,651	19,336	\$ 543
ıllhead	113,182	14,808	6,107	395	1,915	65	_	31,957	173,680	342,109	60,239
ırbot		281	_	804	4,122	4,862	2,760	432,488	42,026	487,343	3,886
arp	391,782	50,758	214,621	65,679	37,707	1,219	37	_	165,863	927,666	85,220
atfish	13,916	125,173	74,118	12,504	14,756	21		_	9,196	249,684	56,575
ոսb	_	_		526,730	227,387		8,067	402,372	******	1,164,556	158,711
·ls	135,640	137	_	-	_	_		_	5,068	140,845	36,492
eshwater Drum	16,119	493,637	11,734	141,096	1,245	_	_	356	1,492	665,679	17,058
oldeye	_		_		_	_	_	10,939	_	10,939	1,860
ke Herring	58,713	19		4,548	4,654	2,040	1,853,987	11,223		1,935,184	91,299
ke Trout		_		1,565	3	89	202,289	97,993	_	301,939	124,737
ke Whitefish	47,560	422	_	380,930	148,247	78,706	149,762	1,785,112	34,540	2,625,279	740,835
orthern Pike	18,501	4,932	18,038	343	15,772	24,563	3,565	863,241	2,997	951,952	85,097
·llow Perch	287,061	22,087,412	63,861	148,895	96,603	8,491	7,948	23,548	6,917	22,730,736	2,403,891
ock Bass & Crappies	50,452	63,255	31,715	1,466	_	823	_	90,548	10,346	248,605	61,287
ound Whitefish				19,046	12,659	3,050	6,432	8		41,195	6,482
uger	_	70	2,282	10	_		22,094	57,124	345	81,925	16,198
nelt	154,995	12,500,675		3,652	15	_	328	_		12,659,665	507,977
urgeon	`763	509	11,743	4,223	1,548	13,301	3,058	25,342	15,599	76,086	92,661
ckers	28,435	75,524	80,246	140,863	48,600	37,666	29,793	838,573	17,505	1,297,205	22,982
nfish	161,069	12,370	64,219		_		_	_	121,507	359,165	43,534
alleye	25,920	746,930	184,462	185,317	61,396	20,648	273,774	1,739,166		3,237,613	1,041,206
hite Bass	2,498	821,554	22,895	5,274	1,425	Association	_	324	· 825	854,795	244,625
											continued

QUANTITIES OF FISH TAKEN (in pounds) (continued)

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Channel	Lake Superior	Northern Inland	Southern Inland	Total Catch	Total Value
White Perch	179,359			-	_	_	_	_	1,367	180,726	14,05
Mixed "Scrap" & Animal Food	140,186	759,905	23,605	100,473	36,682	11,899	3,922	215,041	22,620	1,314,333	9,80
Total Catch	1,831,869	37,770,338	809,646	1,743,813	714,736	207,443	2,567,816	6,625,355	633,544	52,904,560	
Total Value	\$ 243,304	\$3,339,460	\$200,119	\$ 463,501	\$166,792	\$70,018	\$ 350,786	\$1,001,667	\$91,612		\$5,927,25

Statistics of the Fishing Industry in the public waters of Ontario for the year ending December 31st, 1967

EQUIPMENT

EQUIPMENT											
		Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Channel	Lake Superior	Northern Inland	Southern Inland	Totals
NUMBER OF MEN EMPLOYED:		300	720	74	135	107	36	146	561	118	2,1
FISHING BOATS:											
40 feet and over	No. Tons Value \$	3 37 16,000	132 1,977 2,381,060		38 770 509,722	16 208 164,368	7 86 72,000	11 190 153,000	13 104 110,832	=	2 3,3 3,406,9
20 to 39 feet	No. Value \$	62 112,050	66 224,600	20 49,070	12 35,650	31 72,200	12 18,378	41 87,625	74 96,276	8 5,100	700,9
Under 20 feet	No. Value \$	232 74,945	84 28,890	48 22,498	20 13,345	40 15,985	19 6,247	67 31,659	470 238,053	100 17,570	1,0 449,1
FISHING GEAR:											
Gill Nets	Yards Value \$	890,444 223,234	4,875,920 1,482,759	_	1,360,204 353,998	728,915 168,355	188,880 46,550	772,452 174,957	962,414 252,156	31,000 9,160	9,810,2 2,711,1
Pound Nets	No. Value \$	_	146 75,050	450 147,822	17 14,450	27 22,400	18 13,750	10 11,730	47 38,378		323,5
Trap Nets	No. Value \$	14 3,360	325 192,100		153 104,385	12 8,550	5 2,300	2 3,000	54 33,405		347,
Hoop Nets	No. Value \$	1,273 73,286	74 7,750	10 600	_	_			109 15,555	680 39,300	2,1 136,4

continued.

QUIPMENT (continued)

		Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Channel	Lake Superior	Northern Inland	Southern Inland	Totals
Seine Nets	No. Yds. Value \$	2,710 7,612	8,900 30,515	3,400 4,609		_	_	_	_	1,907 3,805	16,917 46,541
Night Lines	Hooks Value \$	23,833 3,887	10,097 2,123	24,560 4,032	150 25	2,100 575	_		1,800 200	2,950 770	65,490 11,612
Dip Nets	No. Value \$	1 10	_	_	_		1 10			3 70	5 90
Trolling Lines	No. Value \$	24 1,225	_	_	_				_		24 1,225
Trawls	No. Value \$		134 115,610	_	5 3,805	4 2,000	_	7 5,400	_	_	150 126,815
HORE INSTALLATIONS:											
Freezers and Ice Houses	No. Value \$	18 7,605	37 400,460	16 19,890	22 128,000	32 53,475	15 15,250	41 113,190	243 159,155	10 5,130	434 902,155
Piers and Wharves	No. Value \$	41 15,300	62 119,063	16 6,231	17 13,750	43 41,130	11 4,000	42 25,150	185 61,157	12 4,225	429 290,006
Net Sheds	No. Value \$	115 80,015	150 615,270	27 70,404	44 146,400	48 58,475	18 13,100	61 43,890	158 62,517	29 13,625	650 1,103,696
OTAL VALUE	\$\$	\$618,529	\$5,675,250	\$325,156	\$1,323,530	\$607,513	\$191,585	\$649,601	\$1,067,684	\$98,755	\$10,557,603

AIT FISH PRODUCTION AND VALUE, 1967

prest istrict	Value	Catch (By Dozens)	Forest District	Value	Catch (By Dozens)
napleau\$	1,271	1,695	North Bay	55,526	132,204
ochrane	8,578	23,033	Parry Sound		103,000
ort Frances	78,469	166,651	Pembroke	11,580	29,130
eraldton	11,074	29,678	Port Arthur	34,037	72,704
ogama	2,346	5,527	Sault Ste. Marie	15,604	23,755
apuskasing	2,849	11,462	Sioux Lookout	80,935	95,216
emptville	92,800	312,600	Swastika	6,660	3,330
enora	186,960	351,092	Sudbury	38,846	62,432
ke Erie	646,000	5,186,187	Tweed	76,252	160,799
ke Huron	27,073	121,912	White River		26,285
ike Simcoe	72,806	406,097			
ndsay	113,140	247,673	Totals	\$1,623,547	7,572,462

Fisheries Inventory Unit

This Unit is responsible for the development of an efficient inventory of the waters of the province; for co-ordinating and enlarging the province-wide lake and stream survey programs; for establishing data retrieval and analysis systems to make inventory information available for management purposes and for dissemination to the public and other agencies.

The most significant accomplishment of the year was the progress made in standardizing lake survey techniques and equipment. Special emphasis was placed on obtaining highly efficient, modern equipment so as to speed up lake surveys while maintaining or improving the quality of the data gathered. The ground work was laid for a data processing system to handle data from

continued ...

over 3,000 lakes, which have been surveyed to date, and an additional 800 lakes surveyed during the first two years of the program.

A major activity of the Unit was the progress made in the fish capability classification of all lakes and streams in ARDA areas, involving 14 of the 21 administrative districts. This program will be expanded in 1968 and 1969, and the work finished by the spring of 1970. Proposals, to make contour maps of lakes and survey information available to the general public, were further investigated, and preliminary plans were made for the drafting of suitable material.

A manual for use of field staff in conducting lake surveys, prepared in 1965, was evaluated during the field season. This manual will be re-written in 1968 to provide major direction in methods by which biological, chemical and physical information should be obtained and recorded. Ontario agencies, as well as others throughout Canada and the United States, are expected to use the manual as a guide in conducting their own programs.

Indian Resource Development

This Unit is responsible for the administration and co-ordination of the Federal-Provincial Resources Development agreement; development of programs for Indian-use of the resources; and liaison between Indians, Indian Affairs Branch and the Department.

The Federal - Provincial Resources Development Agreement, between the Department of Lands and Forests and the Indian Affairs Branch, became effective April 1st, 1962. The agreement is designed to improve the livelihood of persons resident in the remote underdeveloped areas of Ontario, most of whom are Indian, and to develop and manage the renewable, natural resources on which these residents depend for all, or a substantial part, of their livelihood.

The agreement applies to all matters relating to resource development, management and harvesting, and might include commercial fishing, fishing and hunting for domestic use, tourism, wild rice, forestry, big game surveys, park development and trapper development.

To set up and carry out the program, meetings are held annually with representatives of the Department of Lands and Forests, Indian Affairs Branch and Indian Bands. The projects are planned and carried out by the field staff of the Department.

FEDERAL-PROVINCIAL RESOURCE DEVELOPMENT AGREEMENTS

District	Project
Cochrane	Goose Check Station Goose Camps
	Sutton-Hawley Lake
	Indian Trapper Movement
Kenora	Fishery Supervision
	Wild Rice
	Lake Surveys
	Trapnet Demonstration
	Indian Logging Advisor
	Trapper Instruction
Pembroke	Tree Planting
Research	Beaver Survey
110000110111111111111111111111111111111	Caribou Research
Sioux Lookout	4" Mesh Gill Net Study
	Commercial Fish Management
	Big Trout Freezer Plant
	Fort Severn Goose Camp
	Goldeye Introduction
	Winisk Goose Camp
	Trapper Instruction
Swastika	Reserve Development
Swastika	Bait Fish Culture Development
	Commercial Fish Development
Addition Di	Tun Danuar Church
vvnite kiver	Fur Bearer Study Lake Survey
	Indian Trapper Movement
	Indian Trapper Movement
Main Office	Co-ordinator
	Indian Delegates
	Project Assessment
Geraldton	Trapper Instruction
Kapuskasing	Indian Trapper Movement
Sudbury	Trapper Instruction
	Indian Trapper Movement





PARKS BRANCH

OBJECTIVES

- 1. To provide outdoor space in which the people of Ontario may enjoy the recreational pursuits usually associated with the natural environment.
- 2. To establish Provincial Parks to provide outdoor space where it is needed and to preserve important or unusual features of natural or historical significance.
- 3. To reserve areas for future use to meet anticipated demands.
- 4. To preserve the natural environment of parks by restricting practices which would alter the environment, and by providing only the facilities necessary for the well-being of park visitors and the enjoyment of outdoor activities.
- 5. To promote in park visitors an appreciation of park features and the inspirational enjoyment of nature.

ORGANIZATION

Parks Branch is divided into three sections with duties and responsibilities as follows.

RECREATION PLANNING

Long-range planning for parks and related public recreation areas.

PARK PLANNING AND DEVELOPMENT

Detailed Provincial Park master plans and control of all park development according to approved plans.

PARK MANAGEMENT

Establishment and control of standards of park operations; direction of park interpretive programs; management of operating revenues and expenditures; and compilation of statistical data.

weenstron Placeton

During 1967-68, a number of long-range planning and research programs were completed or initiated by the Section. Of singular importance was the commencement of work on an Outdoor Recreation Plan for Ontario which is integrated with an inter-departmental program for preparation of a Master Tourism and Outdoor Recreation Plan. Other important projects included a Study of Travel in the Interior of Quetico Provincial Park, a Survey of Mobile Camping Units in Selected Provincial Parks, and a Study of Regional Ontario Attitudes towards Ontario Provincial Parks.

A park classification and park land zoning system for Ontario Provincial Parks were also adopted in 1967. Five classes of parks were established, namely *Primitive Park*, *Wild River Park*, *Natural Environment Park*, *Recreation Park* and *Nature Reserve*.

Provision also was made to zone land within parks into five zone types: *Primitive*, *Natural*, *Historic*, *Multiple Use* and *Recreation*.

The objectives of this new policy are to protect Provincial Parks from incompatible uses, to facilitate rational planning, to establish guidelines for development and management, and to promote public understanding and enjoyment of the provincial park system.

The classification and zoning system is basic to the preparation of long-range master plans for each park. The new planning program was initiated during the past year.

1308 Placement and Development

With development appropriations of \$2,500,000, continued expansion and improvement of existing parks was carried out, resulting in improved park access and internal roads, additional campsites, comfort stations and trailer sanitary stations, improved and new water and sewage systems, and expanded parking and beach facilities. In addition, development was commenced in five new parks.

Period Management (1997)

During the 1967-68 fiscal year, 94 Provincial Parks were operated including two new parks, Selkirk and Bonnechere. Approximately 3³/₄ million acres of Provincial Park land were available for the enjoyment of the public. A further 531,000 acres were designated as a reserve for future development of Provincial Parks.

The 1967 season was the most successful operating season in the history of Provincial Parks in Ontario. Visitations increased over the previous year by more

than four per cent and reached an all-time high of 10,192,533. Camper use increased by six per cent, providing some 2,805,143 camper days. A total of 1,155,091 campers were recorded by permit in 1967. Although park fees remained unchanged, revenue increased due to the increase in use of the parks.

During 1967, responsibility for the Department Access Point programs was transferred from Lands and Surveys Branch to Parks Branch, and became the responsibility of the Section. A committee was established to study all aspects of this program, and policy recommendations have been made as to the course of action to be taken in the future.

A new Canoe Route and Hiking Trail program (including Snowmobile Trails) was initiated in 1967, and it is expected that there will be a significant increase in this program during the next few years.

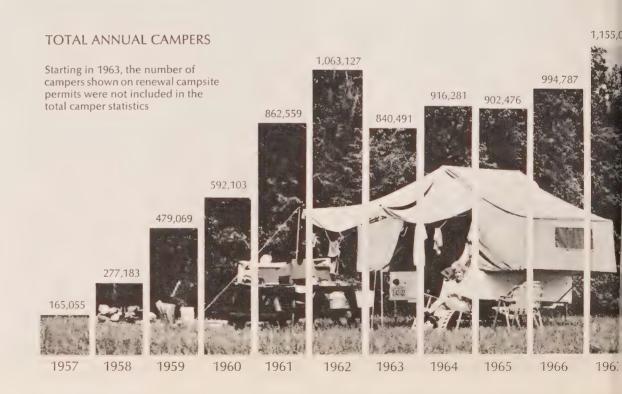
INTERPRETIVE SERVICES

Park interpretive services (designed to promote in park visitors an appreciation of the environment and an enjoyment of historical and natural features) were present in 23 parks in 1967. Museums, exhibits, publications, labelled trails and personal services (such as conducted trips, illustrated talks, and special group programs) are the basic techniques in these services.

Expansion of interpretive services included the addition of an historian to head office, the establishment of two park naturalists at Fort Frances and Lindsay, and the start of new programs at Killbear Point and Grundy Lake Parks.

A new 25-minute, 35 mm slide-tape program, entitled "The Voyageur," relating to the use of the Voyageur's Highway through Ontario, was prepared and shown in Provincial Parks along the route.





RECORD OF PARK USE AND PARK FACILITIES IN 94 PROVINCIAL PARKS

District Park	1966	Visitors 1967	Ca: 1966	mpers 1967	Camping Units	Swimming Beaches (Feet)	Comfort Stations	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Ramps
CHAPLEAU												
ive Mile Lake	4,225	3,227	2,869	2,581	87	500		32	4	_	11/4	1
COCHRANE												
Greenwater	19,196	21,158	2,492	2,624	50	600	_	18	15		$5^{3}/_{4}$	2
ettle Lakes	57,306	56,408	4,944	4,988	125	4,000	1	44	45		51/2	3
idewater	_	***************************************		_	24	200		4	11/2		1/4	_
ORT FRANCES												
Caliper	29,894	25,878	6,207	5,836	92	300	1	10	5			1
ake of the Woods	21,774	26,502	2,195	2,228	100	1,500	_	20	10	_	1	2
Quetico	65,128	75,102	5,314	8,720	135	805	2	18	_	1	4	1
GERALDTON												
lacksand	21,596	14,467	5,709	4,512	168	5,250		21	6	_	9	1
lotz Lake	13,326	14,166	2,875	2,942	33			8	2			1
MacLeod	68,420	50,986	3,578	4,063	54	4,240		20	5		2	2
leys	58,052	41,373	12,278	13,867	80	5,280		14	2		1	
ainbow Falls	72,932	62,317	21,781	24,766	199	300	1	32	5	_	2	2
GOGAMA												
vanhoe Lake	27,921	29,029	3,826	4,430	143	8,500		24	17	_	1	4
CAPUSKASING												
lagagamisis	9,830	15,592	2,381	2,457	80	3,000		36	38			1
emi Lake	28,489	41,493	4,232	4,880	80	2,500	_	36	30		1/4	1
EMPTVILLE												
itzroy	128,872	122,934	10,324	14,972	257	550	1	38	$22^{1/2}$	-	_	2
ideau River	216,106	189,136	11,847	14,527	186	1,587	4	20	22			2
ilver Lake	87,746	102,259	11,461	13,977	197	650	1	20	$2^{1/2}$		_	1
outh Nation	26,745	62,099	3,956	7,317	28			6	8	_	_	1
ENORA												
aron	51,176	58,013	12,070	12,581	70	400	_	22	7		1/2	1
lue Lake	26,791	29,266	12,975	8,530	170	2,750	1	24	3			2
ushing River	97,839	135,366	13,315	15,716	170	650	i	30	23	_	1/2	1
ioux Narrows	41,970	22,708	4,951	4,433	60	150	_	14	2	_	_	1
AKE ERIE												
lay Creek	31,279	25,991	1,875	2,112	47		1	2	4			1
loliday Beach	165,197	98,737	4,494	4,183	56	1,750	6	6	83			1
pperwash	163,906	182,420	15,888	16,402	266	1,600	7	2	8		_	2
ohn E. Pearce		_			_	_	_	4	2		_	Accounty
ong Point	225,210	217,164	24,529	18,065	327	1,600	5	8	16			1
inery	552,566	498,272	58,422	61,645	1,075	27,000	10	71	20	1	5)

District Park	1966	Visitors 1967	Can 1966	npers 1967	Camping Units	Swimming Beaches (Feet)	Comfort Stations	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Bo Ran
LAKE ERIE (continued)												
Port Bruce	_					1,000	_	4	41/2	_		
Rock Point	21,231	36,271	4,601	5,101	47	1,900	_	6	15		1.1	
Rondeau	820,603	597,592	33,641	38,389	433	18,500	9	12	40	1	14	
Selkirk		35,158		2,832	168	1,600		6 32	12 29	-	_	
Turkey Point	112,642	209,719	16,645	14,608	476	1,200	2 4	13	33			
Wheatley	84,102	74,642	4,924	6,552	150	6,900	4	13				
LAKE HURON												
Craigleith	72,237	67,614	13,847	14,617	170	3,100	3	2	12	1	3/	
Inverhuron	181,895		19,182	18,707	324	2,000	4	22	$19^{1/2}$	1	3/4	
Point Farms	95,397	65,896	8,080	7,762	215	1,600	4	4	10 9 ¹ / ₂			
Sauble Falls	90,045	122,395	12,058	12,281	146		3	3	9'/2			
LAKE SIMCOE												
Bass Lake	132,249	135,538	18,357	16,654	154	350	3	16	18	_		
Devils Glen	70,659		2,745	3,359	40		_	3	6			
Earl Rowe	83,141	221,003	6,973	14,716	400	2,000	4	29	40		_	
Mara	57,860	60,161	6,229	6,622	102	550	2	12	211/2		_	
Sibbald Point	297,986		33,475	28,519	718	2,000	10	64	130	1		
Six Mile Lake	111,592		14,132	15,844	179	700		34	15			
Springwater	75,563					20.000	3	2	63	_		
Wasaga Beach	1,037,941	1,025,677				39,000	6		262			-
LINDSAY												
Balsam Lake	_	69,669	8,647	11,663	200	1,500		35	25	-	_	
Darlington	149,946	206,367	17,515	40,073	400	1,000	2	42	120	1		
Emily	153,360	149,108	11,649	15,334	212	1,150	1	22	25	_		
Ferris	-							6	20			
Mark S. Burnham	18,034		_				_	4	4			
Presqu'ile	298,876	,	32,729	61,903	500	7,000	7	46	110	1	3	
Serpent Mounds	143,163	124,173	13,077	14,575	130	600	1	17	30	2		
NORTH BAY												
Antoine	9,029	3,224	1,191	1,604	30	_		4	13	—		
Finlayson Point	36,000		9,575	8,785	136	216	1	21	41/4			
Marten River	130,000		12,809	14,182	237	1,000	1	57	46			
Samuel de Champlain	50,986	94,595	9,454	19,426	224	1,400		35	15	1	91/2	
PARRY SOUND												
Arrowhead	5,732	16,437	1,235	4,288	102	900		30	1			
Grundy Lake	193,665		27,723	29,880	537	1,650		102	8	_	2	
Killbear Point	252,810		28,581	28,139	878	1,400	-	150	30	aunut atre	$4^{1}/_{2}$	
Mikisew	60,245		7,036	6,677	180	1,500		32	10	_	1/4	
Oastler Lake	163,723		14,421	15,345	183	600	1	18	2	_		
Restoule	22,878		3,397	3,607	225	4,000		43	12	draffillin	2	
Sturgeon Bay	28,145		5,347	6,142	87	150		16	1/4	_		

RECORD OF PARK USE AND PARK FACILITIES IN 94 PROVINCIAL PARKS (continued)

District Park	V 1966	isitors 1967	Ca 1966	.mpers 1967	Camping Units	Swimming Beaches (Feet)	Comfort Stations	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Ramps
PEMBROKE												
Algonquin	571,614 —	543,311 7,959	77,233 —	89,835 1,641	1,375 60	3,500 1,000	8	216 10	7 1	2	8	4
Carson Lake Driftwood	4,800 9,566	5,180 12,425	3,446 6,039	5,109 10,259	45 98	150 4,000		10 20	1 1	_		1
PORT ARTHUR												
nwood Jakabeka Falls Jiddle Falls Jibley	21,198 317,776 30,847 28,878	26,291 363,923 28,746 27,368	13,689 22,483 5,263 11,575	17,138 29,549 3,734 9,550	62 119 30 200	100 1,800 — 2,000	4 1	12 14 4 38	2 32 6 25		$\frac{3^{1}/2}{-15^{1}/2}$	
SAULT STE. MARIE												
Batchawanaake Superior	41,567 134,570 10,827 97,170	38,502 145,127 21,617 88,183	 37,056 2,987 29,157	 37,892 2,980 28,849	354 38 278	8,100 12,800 400 10,800	_ _ _	14 98 12 52	10 53 ¹ / ₂ 8 ³ / ₄ 8 ¹ / ₄	 	 4 ¹ / ₂ 1	 3
SIOUX LOOKOUT												
Djibway Pakwash	6,029 4,411	5,926 6,475	1,018 1,438	1,140 1,561	84 60	300 5,300		18 28	7 7		2	3 1
SUDBURY												
Chutes airbank (illarney Vindy Lake	103,134 58,857 41,556 102,317	210,131 78,861 62,590 95,073	14,043 11,363 3,160 3,104	22,354 12,099 3,006 6,033	99 132 60 76	550 1,300 600 5,000		39 22 33 30	4 12 2 100		1 1 ¹ / ₂ 7	1 1 1
SWASTIKA												
Esker Lakes	17,553 16,391	20,954 31,842	3,663 2,835	3,457 3,217	136 64	1,200 —	_	32 28	35 30	1 1	5 4	1
TWEED												
Black Lake	69,632 77,272 —	69,941 138,808 —	8,758 18,175 —	11,878 19,719 —	200 400 —	500 2,300	1 4 1	30 80	10 35 4		2	3 3
ake St. Peter	34,884	33,685 48,724	3,140	3,076	60	1,000 4,000		20 16	5 60		2	2
Outlet Beach	414,029 54,590	413,895 75,255	20,983	25,096 —	480	10,900 26,400	6 —	86 24	200 40	_		4 -
WHITE RIVER												
Obatanga White Lake	36,524 110,990	26,257 127,019	9,739 18,457	13,338 21,041	124 225	1,600 3,600		22 44	10 8	_	11/4	1 2
PROVINCIAL TOTALS:	9,791,671	10,192,533	994,787	1,155,091	17,201	304,028	138	2,600	2,354 ³ / ₄	15	1341/2	123

SUMMARY OF ATTENDANCE FOR INTERPRETIVE PROGRAMS

In year ending March 31, 1968

ALGONQUIN PROVINCIAI	_ PARK		SIBLEY PROVINCIAL PARK		
Museum Attendance (estimated) Pioneer Logging Exhibit (estimated) Conducted Trips	133 days 107 days 63 trips	191,919 90,942 4,892	Conducted Trips Outdoor Theatre Programs Labelled Trails Total:	41 trips 19 lectures 3 trails	595 2,670 660 3,925
Labelled Trail Registration Evening Lecture Programs	6 trails 61 lectures	94,234 2 1,937	PINERY PROVINCIAL PARK		
Special Groups Total:	38 groups	2,902 406,826	Exhibit Centre Conducted Trips	81 days 67 trips	6,850 3 ,165
RONDEAU PROVINCIAL P	ARK		Outdoor Theatre Programs Labelled Trail Special Groups	19 lectures 1 trail 10 groups	9,400 no record 380
Museum Registration	113 days	26,878	Total:	10 groups	19,795
Conducted Trips Outdoor Theatre Programs Special Groups	3 trails 27 lectures 18 groups	no record 1,263 668	LAKE SUPERIOR PROVINCI	AL PARK	
Total:		28,809	Conducted Trips Outdoor Theatre Programs	14 trips 8 lectures	281 1,501
SIBBALD POINT PROVINC	CIAL PARK		Labelled Trail Special Groups Total:	1 trail 2 groups	500 8 5 2,367
Museum Registration	72 days	16,500	ισται.		2,307
PRESQU'ILE PROVINCIAL	PARK		INVERHURON PROVINCIA	L PARK	
Museum Attendance	. , , , , ,		Exhibit Centre		18,707
(estimated)	81 days	24,000			
Conducted Trips Outdoor Theatre Programs Labelled Trail Registration	49 trips 27 lectures 2 trails	937 8,175 3,345	OTHER PROVINCIAL PARK WITH LABELLED TRAILS	(S	
Special Groups Total:	15 groups	846 37,303	Lake St. Peter White Lake		3,000 150
			Peterborough Petroglyphs Kap-Kig-Iwan		no record
QUETICO PROVINCIAL P.	ARK		Killbear Rushing River		3,800 2,000
Museum Attendance (estimated)	85 days	8,420	Remi Lake Rainbow Falls		no record
Conducted Trips Labelled Trail Registration	21 trips 6 trails	364 2.888	Blacksand MacLeod		no record
Outdoor Theatre Programs	24 lectures	3,042	Five Mile Lake		no record
Special Groups Total:	11 groups	387 15,101	Samuel de Champlain Kettle Lakes		no record





FOREST PROTECTION BRANCH

OBJECTIVES

- 1. To protect Provincial forest lands against damage by fire and pests, to the degree warranted by requirements for wood products, recreation and other public needs.
- 2. To protect life and property from forest fires.
- 3. To encourage and promote the protection of privately owned forest lands.
- 4. To provide flying and communication services and to administer the construction and equipment program for the Department.

ORGANIZATION

Forest Protection Branch is divided into two sections and their subordinate units with duties and responsibilities as follows.

FOREST PROTECTION

Forest Fire Control: Administration of The Forest Fires Prevention Act; organization of fire districts and the fire warden system; supervision of fire control planning and preparedness; fire prevention programs including a system of travel, fire and work permits; co-operative fire prevention and control agreements with municipalities, railways, forest industries and other agencies; detection of forest fires and fire danger warnings; training of staff and co-operators in fire control techniques; prescribed burning; co-ordination of fire

suppression; and movement of resources and emergency arrangements.

Forest Pest Control: Prevention and control of damage by insects, diseases and other pests affecting forests under Department management; and advisory services.

Communications: Planning, installation and operation of radio, telephone and teletype services for fire control and other Department requirements; and construction of specialized communication equipment.

Plant and Equipment: Planning, budgeting and supervision of Departmental construction, equipment and sign programs; inventory of Department establishments; liaison with Department of Public Works; prescribing equipment complements, maintenance and replacement standards; and vehicle records, licensing and insurance.

AIR SERVICE

Operation of a fleet of aircraft to meet flying requirements of the Department and special needs of other Government Departments; selection and training of pilots and air engineers; deployment of aircraft and crews; establishment of airbases; fuel distribution and caches; selection of aircraft equipment and development of special equipment; leasing and disposition of helicopters and other aircraft; checking pilot proficiency; and the overhaul and maintenance of aircraft.

THREAT PROTECTION SECTION SECTION

A total of 1,465 fires occurred during the 1967 fire season, burning 63,502 acres. Although a relatively light fire season in total, a critical period was experienced during the first week of June when 307 fires occurred, burning approximately 50,000 acres.

On June 4th, strong winds spread fires to the outskirts of both Chapleau and Sioux Lookout. Evacuation plans were put into motion, and within a few hours approximately 6,000 inhabitants of both communities were evacuated to reception centres in neighbouring communities.

Excellent co-operation, from municipal officials, the Provincial Emergency Measures Organization, the Ontario Provincial Police, local radio and television stations, and individual citizens, resulted in the evacuations being carried out without panic or mishap. By June 6th, the general rains had eased the threat to both communities, and all residents had been returned to their homes.

The extreme fire danger build-up in early June was unique in that it took place in all 22 forest districts in the province. This situation limited movement of fire fighting resources from one region to another. Valuable back-up assistance was provided by the Provinces of Alberta and Manitoba, the Canadian Armed Forces and the United States Forest Service.

The 1,465 fires, which occurred during the 1967 fire season, were 13 per cent below the previous five-year average of 1,674 fires and quite close to the ten-year average of 1,489 fires.

Area burned, which was 63,502 acres, was 56 per cent below the previous ten-year average of 143,701 acres.

Fires which started during the first week in June accounted for 79 per cent of the area burned for the entire fire season.

FIRE DETECTION

During 1967, detection studies were expanded to include six forest districts. Systems, solely dependent on aircraft, and various combinations of aircraft and towers were assessed. It became evident from these studies that continuity of coverage at a reasonable cost could not be provided by aircraft to high-value areas that were particularly vulnerable to fire.



Further studies are planned for 1968 to determine the ideal aircraft-tower mix for an area, based on local redanger conditions. These studies will also provide arther information which can be used by fire control aff as a guide in dispatching aircraft and manning owers.

An airborne infra-red forest fire detection system as flown on an operational basis during 1967. The ajor limiting factor faced was our inability to attain a altitude of 5,000 feet for adequate patrol coverage in most days due to cloud cover. The system again accessfully demonstrated its ability to map the perimeter of "going" fires through dense smoke. Successful utilization of the system is also foreseen in picking o "hot spots" during the mop-up and patrol stages of orest fires.

RAINING

ome 320 personnel have now completed the intenve five-week fire suppression instructor training ourse. Graduates of this course conduct local courses or the benefit of forest industry and municipal personel as well as Department staff.

A five-day course on "Fire Investigation and Law inforcement" was conducted with 39 field personnel attendance. The objective of this program is to improve the skills of staff in investigating the causes of crest fires and the enforcement of fire laws as a basis overall improvement of fire prevention in the Provice.

A course on "Fire Weather" was also conducted for 8 staff members. This course is designed to familiarize ersonnel with weather phenomena affecting fire courrence and rate of spread.

A series of two-day seminars, attended by 150 staff embers and observers, was conducted early in the 267 season covering all phases of "prescribed burng" operations in Ontario. Approximately 175 northern Indians received intensive fire suppression training, bringing the number trained since 1964 to 1,300.

The programmed learning text on fire behaviour analysis, which was started in late 1966, was completed and published in 1967. This approach permits a person to learn without an instructor and at his own rate. It requires about four hours to complete and is designed for persons having about Grade Ten education. Case studies are used to show students how fires behave, and features to look for when analysing fire behaviour.

EQUIPMENT

During 1967, a sferic-lightning storm tracking system was put into operation at Sioux Lookout. This system consisted of a commercial sferics recorder, hourly cloud location maps from the Canadian Forces radar installations at Sioux Lookout, and thunder reports from 75 stations within a 200-mile radius of Sioux Lookout including several from the province of Manitoba.

Preliminary indications are that such a system can successfully plot the general lightning storm path; however, further modification will be necessary to attain the accuracy required for dispatching aerial detection patrols.

A standard 10-, to 20-man nesting aluminum cookery outfit was developed for fire suppression use.

Hand-held infra-red hot-spotters were field-tested with encouraging results during 1967. A modified unit with a wider field of view is proposed for 1968.

PRESCRIBED BURNING

Twelve prescribed burns were carried out in 1967, covering 4,100 acres. Eleven of the burns were slash reduction burns with combined objectives of reducing hazard and preparing sites for treatment. One burn was part of a sanitation treatment to try and eliminate Fomes Annosus root rot from a plantation area.

GENERAL

Nozzle crew competitions were held, involving all districts with an inter-regional competition among the top teams. The Provincial Nozzle Crew Competition was won by the Swastika district.

Under mutual aid arrangements with other provinces, Department water-bombing aircraft were dispatched to assist in fire emergencies in British Columbia, Manitoba, and Newfoundland during the 1967 season.

An assessment of forest protection needs on 17 million acres of land in southern Ontario, now lying outside of the provincial districts, has been carried out.

CAUSES OF FOREST FIRES, 1967

General Causes	Fires	Acres
Lightning	198	4,174
Industrial — Logging	10	12,929
Industrial — Other	38	274
Recreation	567	39,709
Resident	203	1,133
Railways	176	3,836
Incendiary	23	143
Miscellaneous	236	1,283
Unknown	14	21
Total	1,465	63,502
By Sources of Ignition		Fires
Lightning		. 198
Smoking Material		442
Camp Fires		
Grass Burn		
Rubbish Burning		
Unknown		
Matches		
Brush Burn		
Garbage Dump Burn		. 31
Right-of-Way Burning		
Brake Shoe		
Diesel Locomotive		. 61
Steam Locomotive		1
Hot Box		. 1
Fusee		
Tie Burning		
Structural Fires		
Power Line (Short Circuit)		
Sparks from Chimney		
Fireworks		
Power Saw		
Mechanical Equipment		
Spark from Burner		
Sawdust Pile Burning		
Burning Bulldozed Piles		
Explosives		. ,
Dumped Live Coals or Ashes		. 3
Miscellaneous (Known)		
Prescribed Burning		
rescribed building		, 9
Total		1 465

CAUSES OF FOREST FIRES (continued)

by responsible groups	Fires
Lightning	198
Fishermen	205
Children	156
Car Passenger	117
Unknown	85
Berry Picker	82
Campers	49
Resident Rural	115
Hunter	47
Farmer	24
Private Cottager	39
Hiker	40
Resident Urban	24
Other Industrial Employee	15
R.R. Section Crew	15
R.R. Train Crew	131
R.R. Work Crew	12
Canoeist	5
Picknicker	14
Commercial Resort Owner	4
Guided Party	2
Train Passenger	1
Indian (on Reserve)	11
Timber Cruiser	_
Woods Industry Employee	14
Land Survey Party	-
Trapper	2
Prospector	3
Mining Employee	-
Pipeline Employee	_
Hydro Employee	4
Highway or Road Employee	
Municipal Employee	7
Telephone Co. Employee	_
Military	
Miscellaneous	28
L. & F. Employee	
Other Provincial Government Employees	-
Federal Government Employees	
Youth Group	
Total	1,46



OREST PEST CONTROL

URVEYS

fter three years without serious infestations of the pruce budworm, this insect continued to become lentiful during 1967 at several locations across Ontario, and caused noticeable defoliation of balsam and white pruce in three principal localities.

The most important was at Burchell Lake, Port Arthur district, where an infestation, which was small and carcely detectable in 1966, erupted suddenly in 1967 of cover about 30,000 acres. Because the general area sest and northwest of the lakehead, within the Port of the District, was not damaged seriously by previous undworm infestations, it contains an important inventory of merchantable spruce and balsam. In view of the precast spread of the Burchell Lake infestation to an ear of at least 220,000 acres in 1968, this infestation is a extreme importance and will be evaluated for the possibility of aerial spraying in 1968, in an attempt to ring the insect under control.

The other principal areas of spruce budworm activity e in the vicinity of the Town of Chapleau, and in the ttawa Valley from Mattawa to Ottawa. The potential f the latter infestations to cause significant permanent amage is still unknown because of the scattered nature susceptible stands.

In addition to the foregoing, there were many small, cal infestations of the budworm throughout the rovince, including a continuation of the moderately eavy infestation of long standing in a white spruce lantation in the Uxbridge Forest.

The jack pine budworm has been a chronic problem jack pine stands in northwestern Ontario for over 30 ears. In 1966, it became noticeably more serious, and 1967 the infestation intensified and extended over most two-thirds of the Kenora District, and the northest portion of the Fort Frances District. The insect as also active in a small area of the Sioux Lookout istrict and at several points throughout the remainder the Province. This insect has not had a history of the pushing the death of trees, except on poor, rocky sites, there the jack pine on poor sites has a special value, uch as in parks, consideration is being given to spraying for relief from the insect.

The current epidemic of the forest tent caterpillar as largely declined in Ontario from its peak in 1965. 1967, there was an area of active infestation of some 500 square miles in the central portion of the Fort ances District, and about 1,000 square miles along

the southern part of the Sault Ste. Marie District. In addition, there were small scattered pockets of tent caterpillar near North Bay and down the Ottawa Valley. The outbreak which plagued the Muskoka Lakes area since 1962 did not recur in 1967.

The larch sawfly continued to defoliate tamarack trees in northwestern Ontario, and became noticeable at several locations throughout central and eastern Ontario. The insect was not important in southern Ontario except in plantations of European larch.

The European pine sawfly, an insect native to Europe which entered Ontario near Windsor about 1940, continued to spread eastward. The insect feeds principally on Scots, red and jack pines. During 1967, the eastern boundary of its occurrence in Ontario extended about 20 miles and is now a line roughly from Waubaushene to Orillia, Lindsay, Peterborough and Trenton. The

sawfly also occurs locally at Belleville, Tweed, in Prince Edward County, and on Manitoulin Island.

The most noticeable tree disease in Ontario is the Dutch elm disease. The disease occurs throughout the whole of southern Ontario, and extends slightly north of Lake Nipissing. Further spread northward will be very slow and limited because of the scarcity of elms in that part of the Province. In 1967, the disease was found for the first time in the City of Sault Ste. Marie and at points to the east, indicating a relatively continuous occurrence now along the North Channel from Sudbury to Sault Ste. Marie.

In the report of last year, special reference was made to a potentially serious disease of young plantations and nurseries, caused by the Scleroderris canker. Intensive surveys did not reveal any significant change in northern Ontario. The disease was detected for the

NUMBER OF FOREST FIRES AND AREA BURNED BY DISTRICTS

District	1	963	1	964	1	965	1	966	19	967
	Fires	Acres								
Sioux Lookout	92	14,665	113	10,066	59	1,031	121	700	137	11,224
Kenora	171	836	120	1,767	88	694	120	796	192	1,591
Fort Frances	62	2,390	40	2,804	21	9	46	27	61	500
Port Arthur	92	2,564	99	556	48	2,474	93	257	126	628
Geraldton	70	944	24	1,220	32	9,582	46	1,219	22	13,229
White River	40	10,577	16	53	13	29	21	8	31	210
Kapuskasing	53	1,019	24	93	15	18	15	246	29	77
Cochrane	41	1,115	35	2,053	16	615	38	107	34	709
Swastika	46	885	23	304	21	213	49	2,461	41	595
Chapleau	26	28	10	366	8	9	21	21	19	5,871
Gogama	20	34	14	28	18	1,386	27	23	26	2,280
Sault Ste. Marie	121	638	95	413	29	39	124	348	80	23,647
Sudbury	382	16,586	305	1,943	234	1,569	417	6,011	207	1,499
North Bay	155	1,367	110	511	104	391	139	405	81	239
Parry Sound	190	993	268	740	177	305	227	568	108	219
Pembroke	102	701	193	4,512	110	250	121	160	84	131
Tweed	120	556	167	316	136	748	141	649	112	670
Kemptville	4	5	16	157	19	389	9	29	44	144
Lindsay	78	209	120	132	59	152	95	97	13	9
Lake Huron	4	4	9	35	5	_	20	53	11	25
Lake Simcoe	16	22	28	55	6	1	31	230	7	5
TOTALS:	1,885	56,138	1,829	28,124	1,218	19,904	1,921	14,415	1,465	63,502

NUMBER OF FOREST FIRES AND AREA BURNED OVER BY MONTHS

-	1	963	1	964	1	965	1	966	19	67
Months	Fires	Acres								
March	3	10			_					_
April	311	3.321	164	4,212	96	547	81	289	157	792
May	227	13,593	395	8.630	426	2,621	316	5,801	413	5,557
lune	266	27,030	337	6.980	296	11,613	233	4,570	328	55,346
July	550	7,113	620	7,478	192	2,029	908	2,671	215	653
,	118	125	141	101	191	3,067	215	615	142	87
August	86	108	47	21	8	2	113	150	162	513
September October	290	3,490	65	252	7	24	54	319	48	554
November	34	1,348	60	450	2	1	1	_		_
Totals:	1,885	56,138	1,829	28,124	1,218	19,904	1,921	14,415	1,465	63,502

CLASSIFICATION OF FOREST FIRES BY SIZE

	1963 No.	1964 No.	1965 No.	1966 No.	1967 No.
1/4 acre and under	693	845	572	998	630
Over ¹ / ₄ to 10 acres	955	829	560	834	712
Over 10 to 100 acres	198	122	70	70	99
Over 100 to 500 acres	30	22	13	14	16
Over 500 acres	9	11	3	5	8
Totals	1,885	1,829	1,218	1,921	1,465

NUMBER OF FIRES BY MEANS OF DETECTION

	1963 No.	1964 No.	1965 No.	1966 No.	1967 No.
Lands & Forests Fire Tower	620	611	417	558	354
Lands & Forests Aircraft	206	178	66	189	161
Commercial Aircraft	97	55	46	123	65
Private Aircraft	19	34	3	13	17
Lands & Forests Personnel	92	116	67	96	93
Other Provincial Government Employee .	27	41	35	68	44
Outside Agency Fire Tower				2	2
Other Public	824	794	584	872	729
Totals	1,885	1,829	1,218	1,921	1,465

first time at two points in the Lindsay and Twee Districts.

CONTROL OPERATIONS

The forest insect causing greatest economic damages was again the white pine weevil. Control methods 1967 were confined to spraying with ground equipment and hand-clipping and burning infested leading shoot A total of 2,100 acres of young white pine was treated

Approximately 7,600 acres of plantations we sprayed for the control of sawflies, principally the re headed pine sawfly and the European pine sawfly, well as small acreages for the yellow-headed sprusawfly and the larch sawfly.

About 650 acres of sod-covered sites were treated from the control of white grubs, and 525 acres of similar sites from the control of mice, where these pests threaten the survivor newly planted trees.

The major tree-killing disease in the forests Ontario is the blister rust of white pine. A substant disease-control program has been in progress several years in specific areas managed intensively white pine production. The disease is controlled using the herbicide 2.4.5-T to kill the obligate alternates the herbicide 2.4.5-T to kill the obligate alternates and gooseberries, in the imediate vicinity of the pines. In 1967, 4,000 acres high-value young white pine stands were protect against the blister rust in parts of the Sault Ste. Mai North Bay, Parry Sound, Lindsay, Tweed and Kemptvi Districts.

The relatively new disease of plantations in souther Ontario, fomes root rot, is prevented by the application of sodium nitrite to the freshly cut surface of stum during thinning operations. More than 800 acres thinnings were treated in 1967.

COMMUNICATIONS

Three new V.H.F. radio installations, Mark Lake, Mark laine Lake and Rock Point Park, were effected in 19 and nine stations closed out, leaving the total of tradio network at 171.

Ten evaluation Telex installations were made at Etrict Office points in mid-summer and operated throuto the end of the fiscal year. Resultant therefrom, number of radiograms sent over the system dropped about one and 35 per cent for total messages awords, respectively, Telex accounting for the remain of the traffic.

Major radio equipment purchases included 8 airc Single Sideband Installations, 100 V.H.F. Walkie Talk 23 aircraft VOR navigation systems, 22 low powe

TATEMENT OF FIRE DAMAGE — 1967

FOREST FIRE SUMMARY

						· OILES	THE COMMITTEE				
	Merchantable Cu. ft.	Forest Losses \$	Immature Losses \$	Non-Forest Losses	Total Losses \$	Year	Crown Acres	Private Acres	Total Acres	Total No. of Fires	Average Fire Size (Acres)
		·		,	*	1925	132,481	57,062	189,543	1,149	165
ioux Lookout	393,825	133,696	12,250	18,500	164,446	1926	65,888	22,486	88,374	1,110	80
enora	450,366	13,433	842	7,500	21,775	1927	22,772	12,970	35,742	924	39
ort Frances	301,687	9,262	249	1,150	10,661	1928	96,436	3,947	100,383	536	187
ort Arthureraldton	8,751 13,385,970	545 336,132	1,315 19,550	10,575	12,435 355,682	1929	608,750	16,893	625,643	1,550	404
Vhite River	72,640	2,178	415	_	2,593	1930	357,531	354,278	711,809	1,402	508
apuskasing	200	17	96		113	1931	105,866	32,421	138,287	1,851	75
Cochrane	11,050	442	_	360	802	1932	626,555	52,466	679,021	2,073	328
wastika	2,400	144		_	144	1933	325,034	24,924	349,958	1,919	182
hapleau	3,372,200	101,409	21,875	75	123,359	1934	160,348	38,285	198,633	1,568	127
ogama	5,540	156	23,163		23,319	1935	183,179	67,483	250,662	1,309	191
ault Ste. Marie	1,330,364	56,256	507,675	2,250	566,181	1936	1,153,876	110,557	1,264,433	2,264	558
adbury	19,598	1,170	8,588	25	9,783	1937	201,887	22,859	224,746	1,453	155
lorth Bay	448	33	1,850	4,800	6,683	1938	96,168	42,077	138,245	1,292	107
arry Sound	7,840	751	1,025 375	29,200	30,976	1939	26,089	3,009	29,098	961	30
embrokeweed	400 35,827	50 2,518	8,179	11,505 148	11,930 10,845	1940	100,990	20,624	121,614	1,014	120
weedemptville	150	2,310	0,179		8	1941	271,793	394,754	666,547	1,265	527
indsay	150 —		575	1,550	2,125	1942	77,709	36,007	113,716	1,224	93
ake Huron						1943	33,465	19,352	52,817	624	85
ake Simcoe	1,152	9	50		59	1944	73,228	95,663	168,891	1,137	149
						1945	17,997	30,513	48,510	966	5()
otals	19,400,408	658,209	608,072	87,638	1,353,919	1946	44,656	32,113	76,769	1,739	4.4
						1947	38,093	45,939	84,032	1,393	60
						1948	754,778	162,611	1,017,389	2,036	500
artable siraraft radiotalanhan	as and 2 land	station Ci	nalo Cidob	and install	ations	1949	40,593	19,472	60,065	1,834	3.3
ortable aircraft radiotelephone						1950	13,203	23,577	36,780	985	37
Complete new radio comm						1951	96,662	4,581	101,243	904	112
ffected in nine Turbo Beaver	aircraft follow	ing their	delivery fi	rom the fa	ctory.	1952	7,264	5,157	12,421	1,095	11
Types and quantities of radio	equipment in ι	use in 196	7 or held i	n reserves i	ncluded:	1953	44,519	14,290	58,809	1,520	39
ookout Tower V.H.F. Radiotel	enhones				. 352	1954	36,115	18,578	54,693	881	62
						1955	370,948	25,475	396,423	2,252	176
10bile V.H.F. Radiotelephones						1956	221,822	4,390	226,212	1,017	222
atrol Vessel Radiotelephones	(H.F. & V.H.F.)				. 15	1957	24,250	22,401	46,651	1,671	28
ortable radiotelephones of all	types and pow	er output	s, both H.I	F. & V.H.F.	. 1,318	1958	25,544	11,108	36,652	1,558	24
ixed location ground station ra	, ,					1959	2,580	2,701	5,281	1,029	5
H.F. & V.H.F.						1960	29,190	2,196	31,386	956	33
						1961	1,180,900	3,828	1,184,728	1,305	908
ircraft Radio Installations (5 sy						1962	7,583	6,221	13,804	1,521	9
ortable V.H.F. Aircraft Radiotel	lephones for in	rstallation	in other th	nan Goverr	1-	1963	40,692	15,446	56,138	1,885	3()
ment aircraft					. 60	1964	22,463	5,661	28,124	1,829	15
ircraft Ground Hailers						1965	14,995	4,909	19,904	1,218	16
anciart Ground Hallers						1966	8,453	5,962	14,415	1,921	6
Inits in Total					2,705	1967	58,733	4,769	63,502	1,465	4 }

AIR SERVICE SECTION

During the year, eight De Havilland Turbo Beavers and one Twin Otter were purchased, and eight pistonpowered Beavers were sold by public tender.

The "Ontario Integral Float Water Bombing System" was installed in the new aircraft, bringing the total water bomber fleet with this system to ten Otters, twenty-three Turbo Beavers and one Twin Otter.

Seventeen Gelgard fire retardant dispensing systems were installed in aircraft, bringing the number of Gelgard equipped water bombers to six Otters, 14 Turbo Beavers and one Twin Otter. All but one of the remaining piston Beaver aircraft will be replaced by the purchase of five Turbo Beaver in 1968.

Instrument training was given to four pilots on Twin Otter aircraft, providing them with the necessary licence to fly twin engine Department aircraft under Instrument Flight Rules. Four other pilots received Class I instrument ratings on single engine aircraft.

Twenty-six bases were in operation during the fire season. Twelve bases operated the year round to provide the flying service necessary in resources management work.

Five helicopters were leased from May 1st to September 30th to provide transportation in fighting fires. Four of the helicopters were Bell 47G4 models. The fifth, a Bell Jet Ranger, was the first turbine powered helicopter to be leased by the Department.

Total flying time for the year was 15,805:10 hours; total passengers carried, 32,388; and total loads carried, 17,473,856 pounds.

Twelve Mercy Flights, totalling 17:15 hours, were carried out. During the year, aircraft were sent to British Columbia, Newfoundland and Manitoba to assist those provinces during fire emergency periods as part of a co-operative mutual aid program.



Plane lands on small northern lake to deliver equipment to firefighters.

HOURS FLOWN AT OPERATING BASES 1967-68

Base	Hours Flown	Type of Aircraft
Armstrong	310:25	Beaver
Carey Lake	358:50	Beaver
⁴ Chapleau	433:15	Turbo-Beaver
*Fort Frances	583:20	Turbo-Beaver
*Geraldton	717:40	Beaver, Otter & Turbo-Beaver
*Gogama	534:25	Turbo-Beaver
Kenogami Lake	341:05	Beaver
*Kenora	1,237:50	Otter and Turbo-Beaver
Lauzon Lake	305:40	Beaver and Turbo-Beaver
Nym Lake	268:25	Beaver
Parry Sound	387:20	Beaver
Pays Plat	278:45	Beaver
*Pembroke	1,132:50	Otter, Beaver and Turbo-Beaver
*Port Arthur	735:00	Otter and Turbo-Beaver
Pickle Lake	380:10	Otter
Red Lake	360:50	Otter
Remi Lake	318:15	Turbo-Beaver
*Sault Ste. Marie	929:30	Otter, Turbo-Beaver and Twin Otter
*Sioux Lookout	1,214:15	Otter, Beaver and Turbo-Beaver

continuec

HOURS FLOWN AT OPERATING BASES 1967-68 (continued)

Base	Hours Flown	Type of Aircraft
Sudbury	838:10	Otter, Beaver and Turbo-Beaver
Temagami	367:05	Beaver
Timmins	591:35	Otter and Turbo-Beaver
Toronto	1,125:55	Turbo-Beaver, Widgeon and Twin Otte
Tweed	315:25	Beaver
White River	828:05	Turbo-Beaver and Beaver
Air Service, General	910:55	
otal	15,805:10	

Denotes Year-Round Base

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS, 1967-68

			Commercial		
,	Lands & Forests Aircraft	Fixed Wing	Helicopters (Contract)	Helicopters (Others)	Totals
Detection	2,477:00 1,041:45 731:25	1,799:05 1,462:00 70:05	1,005:10 —	— 199:55 —	4,276:05 3,708:50 801:30
ire Ranging, Total	4,250:10 1,218:45	3,331:10 50:15	1,005:10 163:15	199:55	8,786:25 1,432:15
Fish & Wildlife	4,075:45 458:55 568:30	430:15 87:55 30:55	261:05 79:50 11:25		4,767:05 626:40 610:50
Parks Research nterdepartmental Flying	322:05 621:50	19:25	4:40 8:15		326:45 649:30
Administration	4,289:10 15,805:10	23:15	380:55 1,914:35	199:55	4,693:20 21,892:50

		Com		
administration	Lands & - Forests Aircraft	Fixed Wing	Helicopters	Totals
Mercy Flights	17:15	_	3:25	20:40
Fests (Radio & Aircraft)	397:30			397:30
errying & Instruction			204:45	204:45
Intomology	61:40	_		61:40
orced Landing and Operations	1,106:45		77:30	1,184:15
Fransportation	2,706:00	23:15	95:15	2,824:30
purveys	_	_		-
Administration, Total	4,289:10	23:15	380:55	4,693:20



Twin Otter on patrol.



Turbo-Beaver on patrol.

AIRCRAFT FLYING TIME AND TRANSPORT

Aircraft	Flying Ti 1924-1967	me 1967-1968	Total		ective Loads 1967-68	
BEAVER						
CF-OBS	6,848:05	248:45	7,096:50	145 tons,	1,850 pounds	
CF-OCE	6,277:20	324:30	6,601:50	36 tons,	101 pounds	
CF-OCG	4,769:30	268:00	5,037:30	28 tons,	775 pounds	
CF-OCH	5,521:25	329:15	5,850:40	91 tons,	151 pounds	
CF-OCL	4,853:50	234:15	5,088:05	35 tons,	1,233 pounds	
CF-OCV	5,202:45	185:00	5,387:45	52 tons,	246 pound	
CF-ODA	4,368:40	143:40	4,512:20	22 tons,	1,612 pound	
CF-ODB	5,537:55	296:20	5,834:15	77 tons,	1,233 pound	
CF-ODC	6,435:00	337:35	6,772:35	69 tons,	975 pound	
CF-ODD	2,621:25	293:00	2,914:25	74 tons,	1,627 pound:	
CF-ODE	4,405:15	537:10	4,942:25	82 tons,	1,635 pound	
CF-ODF	4,439:10	399:50	4,839:00	158 tons,	1,116 pounds	
CF-ODG	5,618:55	210:30	5,829:25	43 tons,	110 pound	
CF-ODS	1,655:05	148:50	1,803:55	20 tons,	1,066 pound:	
OTTER						
CF-ODJ	4,525:25	486:45	5,012:10	248 tons,	179 pound	
CF-ODK	3,595:50	252:00	3,847:50	209 tons,	1,860 pound	
CF-ODL	4,131:05	439:00	4,570:05	263 tons,	280 pound	
CF-ODP	2,973:35	326:55	3,300:30	329 tons,	1,023 pound	
CF-ODQ	3,475:30	444:00	3,919:30	173 tons,	1,115 pound	
CF-ODU	2,128:40	461:30	2,590:10	716 tons,	338 pound	
CF-ODV	2,918:05	443:55	3,362:00	283 tons,	530 pound	
CF-ODW	2,103:25	263:10	2,366:35	375 tons,	939 pound	
CF-ODX	1,524:05	410:25	1,934:30	574 tons,	328 pound	
CF-ODY	1,177:15	301:05	1,478:20	755 tons,	685 pound	
WIDGEO	Ν					
CF-ODR	2,382:35	205:50	2,588:25	15 tons,	429 pound	
TURBO B	EAVER					
CF-OEA	877:55	405:25	1,283:20	263 tons,	562 pound	
CF-OEB	595:35	419:35	1,015:10	149 tons,	601 pound	
CF-OEC	627:15	432:35	1,059:50	193 tons,	1,395 pound	
CF-OED	740:40	363:20	1,104:00	207 tons,	1,213 pound	
CF-OEE	807:30	262:50	1,070:20	133 tons,	185 pound	
CF-OEF	655:10	341:45	996:55	402 tons,	1,051 pound	
CF-OEH	291:15	460:25	751:40	191 tons,	892 pound	
CF-OEI	258:55	464:40	723:35	119 tons,	1,933 pound	
CF-OEJ	11:45	565:00	576:45	481 tons,	1,799 pound	
CF-OEK	261:35	637:10	898:45	364 tons,	1,935 pound	
CF-OEL	175:50	454:30	630:20	223 tons,	896 pound	
CF-OEM	175:35	479:30	655:05	146 tons,	1,891 pound	

AIRCRAFT FLYING TIME AND TRANSPORT (continued)

	Flying T	ime		Effec	ctive Loads
Aircraft	1924-1967	1967-1968	Total	1	1967-68
TURBO B	BEAVER (contin	iued)			
CF-OEN	110:30	443:00	553:30	144 tons,	1,176 poun
CF-OEO	116:20	364:00	480:20	145 tons,	1,831 poun
CF-OEP		461:55	461:55	243 tons,	90 poun
CF-OER		142:20	142:20	14 tons,	1,891 pour
CF-OES		168:30	168:30	28 tons,	870 pour
CF-OET	_	116:20	116:20	_	830 pour
CF-OEU		80:10	80:10	4 tons,	1,393 pour
CF-OEV	-	2:30	2:30		
CF-OEW		2:45	2:45	_	
CF-OEX	-	2:25	2:25	-	
CF-OEY	_	2:20	2:20		_
TWIN O	TTER				
CF-OEG	277:45	391:35	669:20	51 tons,	1,766 pou
CF-OEQ	_	349:20	349:20	342 tons,	220 pou
All Other					
	305,497:15	_	305,497:15	_	_
Total	410,970:40	15,805:10	426,775:50	8,736 tons,	1,856 pou



Turbo-Beaver and Twin Otter in flight.

Demonstration of water dropping by Turbo-Beaver.

LYING TIME — PILOTS

'ilots	1924-1967	1967-1968	Total
.llen, D. W	5,002:30	355:45	5,358:15
yers, N	173:00	406:50	579:50
allantyne, G. E.	3,684:20	93:40	3,778:00
eaushene, G. D.	5,804:10	311:10	6,115:20
ieck, A. H	3,576:00	404:55	3,980:55
urtt, A. E	10,048:40	335:50	10,384:30
lalver, D. R	5,061:50	337:55	5,399:45
lampbell, G. E	7,469:55	542:10	8,012:05
Colfer, A. P	9,801:05	580:20	10,381:25
looke, T. C	8,804:25	123:20	8,927:45
ram, W. W	2,667:25	435:00	3,102:25
roal, D. M	4,262:35	576:20	4,838:55
renley, J. G	8,924:20	278:10	9,202:30
vans, F. B	6,031:55	383:25	6,415:20
ood, S. D	606:05	314:20	920.25
ilennie, N. A	4,488:50	404:50	4,893:40
Ioar, H. S	4,076:50	177:10	4,254:00
loeberg, P. S	5,338:30	667:00	6,005:30
lowe, F. R	874:25	406:35	1,281:00
achanovsky, J	248:45	356:40	605:25
irk, C. J	6,154:15	283:35	6,437:50
amont, J. A	5,398:30	377:10	5,775:40
efeuvre, C. J	11,098:40	280:15	11,378:55
owe, B	2,895:20	299:15	3,194:35
1agill, J. B		469:20	469:20
1cLellan, D	159:30	362:05	521:35
1cLeod, A. A	668:45	534:45	1,203:30
IcLeod, A. K	1,038:30	558:30	1,597:00
itcNabb, D. D	1,065:00	393:45	1,458:45
toore, K	246:25	25:15	271:40
Jorth, D. H	2,824:40	382:20	3,207:00
ryman, R. V	2,021110	445:30	445:30
arsons, R	8,610:40	308:30	8.919:10
legel, J	6,818:55	362:55	7,181:50
peight, H. C	10,433:00	464:00	10,897:00
lavlor, J. M	3,813:55	36:20	3,850:15
homas, E	5.138:30	343:55	5,482:25
hompson, F. J.	4.688:15	37.1:15	5,059.30
urcotte, L. J	3 149:15	517:25	3,666:40
Varner, W. K		507:10	507:10
Veisflock, E. J	1,222:45	598:40	1,821:25
Other Pilots	239,541.20	391:50	239,933:10
lotal:	411,911:45	15,805:10	427,716:55



MERCY AND EMERGENCY FLIGHTS, 1967-68

Date	Aircraft	Pilot	Journey	Time	Reason
Apr. 11/67	CF-OEA	Turcotte, L. G.	Gogama — Sudbury	1:05	Man with extremely bad groin and abdominal injury rushed to hospital.
May 16/67	CF-OED	Turcotte, L. G.	Mattagami Lake — South Porcupine	2:05	Two tourists subject to propane gas poisoning. One died other revived by resuscitator and rushed to South Porcupine Hospital
June 23/67	CF-ODL	Siegel, J.	Slay's Camp — Red Lake	1:40	Searching for 6 men lost on lake in high wind.
July 8/67	CF-OEO	Thompson, F. J.	Ranger Lake — Sault Ste. Marie	:55	Forest Ranger at Ranger Lake injured and flown to hospital in Sault Ste. Marie.
July 18/67	CF-OEA	North, D. H.	Hayward — Marathon — White River	1.25	7-year-old boy fell off lad- der from tower taken to Marathon.

MERCY AND EMERGENCY FLIGHTS, 1967-68 (continued)

Date	Aircraft	Pilot	Journey	Time	Reason
July 24/67	CF-ODP	Burtt, A. E.	Saganaga Lake — Ely, Minn. — Saganaga Lake	1:00	17-year-old boy fell or portage striking his head on a rock and badly dislocating his shoulder. Flowr to Saganaga Lake, later transferred to aircraft and flown to Ely, Minn., Hospital.
July 21/67	CF-OCE	Lamont, J. A.	Seagram Lake — Temagami	:25	Flew sick man who needed medical attention to Temagami.
Aug. 23/67	CF-OED	Turcotte, L. G.	Gogama — Sudbury	1:25	Flew boy to Sudbury with severe cut on right leg exposing bone below kneeds as a result of a fall or broken glass.
Aug. 25/67	CF-OEL	Campbell, G. E.	Two Rivers — Smoke Lake	:10	Flight to Two Rivers for resuscitator.
Sept. 19/67	CF-ODP	Burtt, A. E.	Whitewater Lake Port Arthur	2:15	Transportation of 3 deceased bodies.
Sept. 22/67	CF-ODP	Howe, F. R.	Whitewater Lake — Port Arthur	3:10	Transportation of 3 de ceased bodies.
Jan. 3/68	CF-OEC	Cram, W. W.	Chapleau — South Porcupine	1:40	Flew sick man with per- forated ulcer to Timmin Hospital.
12 Mercy Flig	hts, Total:				
Date	Helicopter	Pilot	Journey	Time	Reason
June 6/67	CF-SCE	Boughner	Cochrane — Chapleau	1:40	Rescued towerman's daughter who had broker leg.
July 8/67	CF-WDH	Schultz	Ranger Lake — Sault Ste. Marie	:20	Transported two injured Junior Rangers to hospital
Sept. 21/67	CF-PUU	Boughner	Matheson — Kenogami Lake	1:25	Search for missing man.
3 Mercy Fligh	its: Total:				





LANDS AND SURVEYS BRANCH

OBIECTIVES

- 1. To maintain a rational basis for Crown land retention and disposal to maximize the social and economic benefits of land use, including the natural environment for recreation.
- 2. To develop, implement and maintain Land Use Plans, which reflect the capacity of the land, the needs of people and economic realities, in order to meet the above objectives, and to aid in the establishment of land acquisition needs and priorities.
- 3. To conduct Crown surveys, maintain survey records, and provide mapping services.
- 4. To undertake engineering consultation, studies and planning for fish and wildlife projects.

ORGANIZATION

Lands and Surveys Branch is divided into four sections with duties and responsibilities as follows.

LANDS

Administration of public lands and their disposition by sale, patent, vesting order, quit claim deed, lease, licence of occupation, or land use permit; release of reservations in patents, assignments and cancellations; and reservation of lands for public and government uses.

LAND ACQUISITION AND PLANNING

Recommendations and applications for purchase of private lands for public uses; development and co-ordination of land use plans in all districts for the management of renewable, natural resources; Recreational Land Inventory Sector of Canada Land Inventory; co-ordination of departmental A.R.D.A. projects; and liaison with Department of Agriculture and Food in private lands and with other Departments on the socio-economic implications of land use objectives.

SURVEYS

Examination, recording and custody of original plans and field notes of restoration of original Crown survey points, retracement and municipal surveys, and surveys of Crown lands for disposition; map compilation; authorization of geographical names; and distribution of maps, publications and copies of survey records.

ENGINEERING

Approval of dams; licences of occupation for dams; flooding and diversions; water resource management; issuance and servicing of Water Power Lease Agreements; engineering consultations; feasibility studies, inspections, reports, planning for fish culture stations, wetland developments, fishways and other fish and wildlife projects; and access roads.

LANDS SECTION

The primary function of the Section is to provide the means whereby individuals and corporations may obtain the public lands they require for various purposes. The usual requirements are for living space (either full-time or part-time residence) and for commercial or industrial uses. Public land may be transferred to private ownership for any purpose except the propagation of the renewable, natural resources administered by the Department. This excludes uses such as tree farming, fish farming and game farming, and large areas for private recreational use.

To carry out this operation, the section must study land values, answer enquiries, and plan for the orderly and efficient disposal of lands as nearly as possible in tune with the requirements of the population and the economy. Plans for disposal must also ensure that provision is made to preserve adequate areas of land for public and government uses.

Public lands are transferred to private control by sale or rental. The use to be made of the land is always a prime consideration. Except for rental by Land Use Permits, the applicant is required to spend two to ten times the established land value on improvements within a limited time before title passes to him. Thus, the actual price of the land is always considered as secondary to the economic advantages accruing from the new development.

LAND TRANSACTIONS

Year Ending	Land Use Permits	All Other Transactions	Total
March 31, 1968	4747	2693	7440
March 31, 1967	4555	2756	7311
March 31, 1966	4382	2481	6863
March 31, 1965	4436	2720	7156

The major share (71%) of the other land transactions involve summer cottage properties. During these years, cottage properties were purchased as follows: by residents of Ontario, 79.5%; by residents of other provinces, 5.2%; and by residents of other countries, 15.3%.

During the year, four new restricted areas were set up to control and regulate all improvements on land in and around the communities of Batchawana, Mattice, Foleyet and Sultan.

At the year's end, plans were formulated to assume the operation of garbage disposal sites to serve communities which do not have a municipal organization.

LAND ACQUISITION AND PLANKING SECTION

The Section was formed in 1963 to implement the program announced in the Speech From the Throne in the Fall Session of 1962. This program anticipated the expenditure of \$200 million over a twenty-year period for the purchase of land for recreation, wildlife management, parks, reforestation and other resource management uses.

Since the inception of the program, 127,397 acres had been acquired by March 31, 1968. During the 1967-68

fiscal year, Treasury Board approved 26 projects involving the purchase of 10,276 acres of land. The Ontar Parks Integration Board approved 61 projects involvi purchase of 48,475 acres of land. A total of 64 leas were acquired in Algonquin Park and at Rondeau Pain keeping with the policy to revert these areas to wilderness state and to permit public, rather the private, use of certain areas.

Included in the land acquisition program are eigprojects that are approved under the A.R.D.A. agree

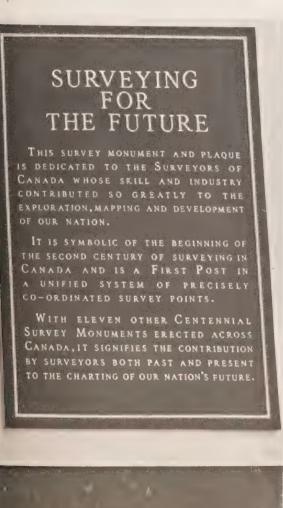
Ontario Post One, the first monument in the Onta Plane Coordinate System.



ent. During 1967-68, 34,200 acres were acquired nder the A.R.D.A. agreement.

The Recreation Land Inventory is a continuation of e-joint Federal-Provincial Canada Land Inventory protam. Field work was carried out in 20 Forest Districts uring the past year, and 60 per cent of the A.R.D.A. greement area was mapped and rated. In addition, 13 ap sheets, at the scale of 1:250,000, were compiled, rafted, and submitted to Ottawa for publication.

laque on Ontario Post One.



SURVEYS SECTION

"POST ONE"

As a part of a federal-provincial centennial project developed by the Advisory Council on Cadastral Surveys, the dedication of the first monument in the Ontario Plane Coordinate System of surveys took place on June 21, 1967. The monument is linked to a similar monument, in each of the provincial and federal capitals, by azimuths and distances shown on a plaque in a ceremonial setting adjoining each monument.

CARTOGRAPHY

Production of maps of parts of Northern Ontario in the provincial series, at one-inch-to-two-mile scale, continued with the printing of maps designated Wenebegon Lake, Michipicoten, Chapleau, Ridout and Foleyet.

The eight-mile series of maps was extended with the production of a map of the North West portion of Kenora Patricia Portion, and an existing map of the series was revised and the design and format improved.

The Section assisted other Branches and Departments with the compilation and production of special maps and art work. These included such issues as Rideau Valley base maps, Wolf Survey Map of Algonquin Provincial Park, Algonquin Park Canoeist map folder, Electoral Maps, Location of Dams in Southern Ontario, and regular, annual productions of the Hunting and Fishing Regulations map folders.

The addition of a toponymist to the Section during the year permitted more concentrated effort to be directed to the research and investigation of geographic nomenclature. The section aided toponymists of the Department of Energy, Mines and Resources, Ottawa, with a field investigation of nomenclature in eastern Ontario.

LEGAL SURVEYS

Legal Surveys Subsection carries out drafting and plan examination, and prepares instructions for surveys carried out by departmental surveyors, as well as for all surveys carried out by private surveyors to meet the needs of the retracement, restoration, subdivision and inspection programs.

Drafting of area plans, special maps and charts, legal survey plans resulting from departmental field survey activities, graphic illustrations, and redrafting of township plans on a scale, 1 inch = 20 chains, was con-

tinued. In addition, the location and extent of all new alienations of Crown land continued to be plotted on township or area plans to maintain a graphic illustration of the status of land throughout the Province.

All plans of survey, or plans compiled from available information, leading to any form of alienation of Crown land were examined for compliance with statutes and departmental policy. These plans included surveyed individual summer resort, commercial or industrial locations, water lots and Crown subdivision. In addition, returns from surveys carried out under instructions, such as retracement restoration and municipal surveys, which did not lead to alienation, were examined for compliance with statutes and instructions.

Field surveys for administrative purposes were carried out by staff surveyors with headquarters in Parry Sound and Tweed. These surveyors were engaged in determination of encroachment on Crown land and extent of ambiguous Crown grants, retracement, inspection and park surveys, together with other miscellaneous surveys.

SURVEY RECORDS AND MAP DISTRIBUTION

The main responsibilities discharged by the Subsection are the custody of survey records and the distribution of reproductions for sale and official use, and the distribution and sale of maps and publications produced by the Department, as well as the maps produced by the federal Department of Energy, Mines and Resources, Ottawa.

An increase of over one-third in the quantity of map sheets distributed of the Provincial Topographic Series, due to five new sheets being made available, and of the National Topographic Series produced by the Federal Government, due to an increased number of new sheets produced, and the revision of existing sheets, occurred over the number distributed in the previous fiscal year.

A decrease in the distribution of the territorial map series is noted due to the availability of new and updated larger-scaled sheets of the topographical series on the grid system.

Sensitized reproduction material consumed for copying topographic maps and township tracings, Georgian Bay Island sheets, summer cottage lot subdivisions and other miscellaneous plans, as well as surveyors' field notes, by the contact dry process and photographic reproduction methods increased substantially this fiscal year. Numerous enquiries for historical and genealogical information continued to be received as a result of Centennial year.

ENGINEERING SECTION

The Section continues to provide management of water resources through approval of dams under The Lakes and River Improvement Act; determination of the terms and conditions, and preparation of water power lease agreements under The Water Power Regulation Act; administration of licences of occupation for dams constructed principally for log driving purposes; and administration of the reconstruction of old dams. In addition, special engineering consultation services are provided in hatchery design and construction, and in fisheries and waterfowl management projects.

ACCESS ROADS

Some 2,500 miles of forest access roads were maintained during the fiscal year; this is an increase of 650 miles over the previous year.

The criterion for eligibility for maintenance has not been broadened to include roads other than those used by the Department for pursuit of its programs, but has increased steadily as the Department's capital road construction program has expanded, and reflects to a degree the new policy to maintain some abandoned logging roads where it is in the interest of the Department to do so.

Clearing a roadway, northern Ontario.







PERSONNEL BRANCH

OBJECTIVES

- 1. To provide adequate, competent staff for the Department.
- 2. To encourage good job performance through a career concept based on promotion, in-service academic and technical training, and up-to-date position classification.

ORGANIZATION

Personnel Branch is divided into five sections with duties and responsibilities as follows.

Employment: Recruitment of staff, including Junior Forest Rangers; recruiting activities at universities and technical schools; job advertising; transfers and promotions; establishment and complement control; and assignment of qualified employees to positions.

Classification and Job Evaluation: Ensuring that positions are properly classified and recommending the classification of positions; identifying and recording of organization and positions; ensuring that position specifications are produced; classifying positions under the Delegated Authority; and developing class series.

Training and Special Assignments: Co-ordinating and organizing Department training courses; arranging for employees to attend courses given by outside agencies; liaison with Ontario Forest Technical School and Educational Leave Committee; analyzing Department training needs; evaluating courses; and special assignments.

Employee Relations: Counselling of employees; improvement of communications between field and head office staffs; investigations of problems relating to personnel; liaison with Staff Relations Branch, Treasury Board and Civil Service Association of Ontario; and maintaining department program on alcoholism.

Office Management: Documentation of personnel records; attendance reports and leaves of absence recommendations; processing nominations to staff; transfers; separations; group insurance applications and changes; merit increases; accelerated increases; salary revisions; maintaining personnel files for all Regular and Probationary staff and Group 3 Unclassified; and providing statistical information at the request of other branches of the Department.

TWO DESIGNATIONS AND INCOME.

In 1967, 106 students graduated from the Ontario Forest Technical School Diploma Course out of a total of 151 students enrolled. 145 students enrolled for the 1968 course which is still in progress. Other courses given at the School in 1967, and the number of students enrolled, were as follows.

Scaling	264
Timber Certificate	25
Fish and Wildlife Certificate	26
Deer and Moose Aging	206
Fish and Wildlife Law Enforcement	81
Forest Fire Suppression	62
Fire Investigation and Law Enforcement	39
Lands Certificate	22

In addition, University of Toronto undergraduates in the following faculties made use of the school facilities —Faculty of Forestry, Faculty of Applied Science and Engineering, Faculty of Arts and Science, and The School of Architecture.

ALMERATE AND A PARTY

During the fiscal year, there were four classification grievances and two working conditions and terms of employment grievances, making a total of six. Of these and five previously unresolved grievances, eight were resolved by the Department or withdrawn, two are still pending, two were heard by the Classification Rating Committee (one upheld and one dismissed) and one by The Public Service Grievance Board (dismissed).

THIS ISSUED AND IN

The recruitment program, for foresters, biologists, forestry technicians and conservation officers, covered 20 universities and technical schools in addition to job advertising in printed media for certain professional positions. Summer work projects in forestry and biology were staffed with university and ranger school undergraduates in related courses. This provided career-minded students with an opportunity to become acquainted with the Department's work programs and gain useful experience.

A new card system for establishment control has been put into use and records are now available to show complement by district, branch and, basically, by vote. The results have been published, and District Foresters and Branch Chiefs are now in a position to know precisely about staff complement.



SPOSITION OF PERSONNEL

R. Wilson (Regional Director of Southern Region) appointed Acting Chief of Research Branch when former Chief, A. P. Leslie, was superannuated on uary 17, 1968. Mr. Leslie had been Branch Chief to September 15, 1964.

V. T. Foster, (Supervisor, Forest Protection Section) appointed Chief of Forest Protection Branch on wember 20, 1967. This followed the death of the mer Chief, J. M. Whalen, who had held that position ce June 14, 1963.

The disposition of senior administrative staff as of rch 31, 1968, was as follows:

puty Minister: G. H. U. Bayly.

istant Deputy Minister: R. D. K. Acheson.

gional Directors: A. J. Herridge (North-Eastern); L. gham (North-Western); D. R. Wilson (Southern).

gional Forester: T. W. Hueston (South-Central).

nch Chiefs: P. Addison (Parks); Dr. C. H. D. Clarke th and Wildlife); R. G. Code (Lands and Surveys); H. Ferguson, Q.C. (Law); W. T. Foster (Forest Protion); R. R. MacBean (Accounts); M. B. Morison (mber); P. O. Rhynas (Operations); J. M. Taylor (Peranel); D. R. Wilson (Acting) (Research).

Arrict Foresters: M. A. Adamson (Parry Sound); J. S. I (Sault Ste. Marie); R. A. Balkwill (Fort Frances); A. Baxter (Sioux Lookout); W. H. Charlton (Kempte); W. B. Clarke (Lake Erie); I. B. Earl (Gogama); L. H. Lel (Cochrane); D. A. Fawcett (Kapuskasing) D. E. Lege (Geraldton); F. L. Hall (Lake Huron); G. A. Hamilton (Port Arthur); S. R. Hamilton (Swastika); K. K. Lawa (Kenora); A. W. Leman (Lake Simcoe); G. A. Cormack (Sudbury); N. D. Patrick (Tweed); A. H. Lecock (Chapleau); F. E. Sider (Pembroke); W. L. Leman (North Bay); W. D. Tieman (Acting) (White Ler); A. E. Walroth (Lindsay).

Itario Forest Technical School Director: R. W. Hum-

TOTAL STAFF, MARCH 31, 1968

	Regular	Probationary	Unclassified Staff	Total	PROFESSIONAL EMPLOYEES ON STAFF, MARCH 31	, 196
Head Office	582	148	61	791	Foresters	24
Field	1,722	342	905	2,969	Biologists	8
Total:	2,304	490	966	3,760	Professional Engineers	
Total compler positions as		egular and pr 31, 1968		3,150	Miscellaneous	38
Total regular a 31, 1968		tionary staff a		2,794	Number of Ontario Forest Ranger School Graduates on Staff	1 0 1
Total vacancie 1968		olement as at		356	Number of Licensed Scalers on Staff	88

TOTAL NUMBER OF EMPLOYEES ON STAFF BY MONTHS

		HEAD	OFFICE			F	FIELD		
1967	Reg.	Prob.	Unclass.	Total	Reg.	Prob.	Unclass.	Total	Grand Total
Apr.	591	98	57	746	1,699	184	2,464	4,347	5,093
May	587	102	106	795	1,710	178	4,310	6,198	6,993
June	583	103	139	825	1,742	199	4,059	6,000	6,825
July	581	101	110	792	1,697	212	4,315	6,224	7,016
Aug.	587	119	117	823	1,683	198	4,547	6,428	7,251
Sept.	586	127	75	788	1,690	188	3,373	5,251	6,039
Oct.	578	122	52	752	1,692	202	2,288	4,182	4,934
Nov.	592	131	52	775	1,703	197	1,497	3,397	4,172
Dec.	578	130	57	765	1,697	210	1,134	3,041	3,806
1968									
Jan.	577	149	60	786	1,702	299	982	2,983	3,769
Feb.	579	147	62	788	1,725	333	934	2,992	3,780
Mar.	582	148	61	791	1,722	342	905	2,969	3,760
Average	583	123	79	785	1,705	228	2,567	4,500	5,285

rest mensuration class, Ontario Forest Technical hool.

NEW EMPLOYEES HIRED DURING THE FISCAL YEAR 1967-68

	Male	Female	Total
Head Office	64	76	140
Field	245	55	300
Total	309	131	440

STAFF TURNOVER OF REGULAR AND PROBATIONARY EMPLOYEES DURING THE FISCAL YEAR 1967-68

	Resigned	Dismissed	Retired	Died	Super- annuated	Transfers Inter- Departmental	Total
Head Office	53	4	2	5	20	2	86
Field	65	5	3	17	28	7	125
Total	118	9	5	22	48	9	211

Note: The staff turnover for the fiscal year was 7.55%. This is the ratio of separations to total regular and probationary staff.

NEW EMPLOYEES HIRED DURING THE FISCAL YEAR 1967-68

	Male	Female	Total
Head Office	64	76	140
Field	245	55	300
Total	309	131	440

TOTAL PERSONNEL ON STAFF

	Regular	Probationary .	Unclassified	Total
March 31, 1967	2,270	297	777	3,344
March 31, 1968	2,304	490	966	3,760





LAW BRANCH

OBJECTIVES

- 1. To provide legal counsel and services for the Department.
- 2. To maintain services of the Patents Office.

The duties and responsibilities of Law Branch may be summarized as follows:

ORGANIZATION

Policy: Establishing and reviewing Department policy with respect to legislation, regulations or administration; and integrating Department policies into those of the Government.

Interpretation of statutes and regulations.

Advice to branches and field offices on the legal position of the Department in all matters affecting it.

Preparation and Processing of agreements; briefs, opinions and memoranda on special subjects; leases; legislation; licences; office consolidations

of statutes and regulations; pleadings; recommendations to Council; and regulations under the various statutes administered by the Department.

Services (miscellaneous): Collection of bad accounts; conducting litigation; conveyancing; representing the Department as Counsel in Provincial Land Tax Appeals and other hearings; settlements of claims and disputes; and title searching.

Liaison with federal officials on matters concerning fisheries; federal canal systems, harbours and lands; and Indian reserves and rights of Indians, particularly regarding hunting and fishing.

Patents Office: Maintenance of records of Crown land and transactions respecting, and legal dispositions of Crown lands; advising the public on records; compilation of statistics; and preparation and engrossing of documents disposing of Crown land including leases, letters patent and licences of occupation.

LEGISLATION

At the Session of the Legislature that convened on the 14th day of February, 1968, and prorogued on the 23rd day of July, 1968, four statutes to be administered by the Department were enacted, and amendments were made to five statutes administered by the Department.

THE FOREST FIRES PREVENTION ACT, 1968

The Forest Fires Prevention Act was re-enacted, and the new Act will come into force on proclamation. The major changes in principle in the new Act include:

- 1. The repeal of the onus of proof clause under section 10(4) of the present Act and the replacement thereof by regulations which set the standard of fire prevention and suppression measures on all classes of woods operations.
- 2. The repeal of the travel permit system and in lieu thereof a three-level system of control as follows:
 - (i) restricted fire zones in which fires will be restricted to portable stoves and barbeques;
- (ii) restricted travel zones in which travel without a permit will be prohibited except on public roads, cities, towns, villages, police villages, supervised camping grounds and waterways adjacent thereto;
- (iii) emergency state in which the Minister may make orders for the safety and evacuation of persons in the area.
- 3. Work permits will be taken out by the person primarily responsible who shall be liable for operations conducted by contractors and sub-contractors.
- 4. Municipal responsibility for the extinguishing of grass and forest fires continues with the change that the Crown will assume all costs of fires started on Crown lands regardless of whether they spread to private lands.
- 5. Smoking while walking or working in a forest is an offence.
- 6. A fire permit will be required before igniting fire works in or within 1,000 feet of a forest.
- 7. The orders of the Canadian Transport Commission apply to provincial railways.
- 8. Maximum penalties are increased to \$1,000.00.

INTERPRETATION

Section 1 of the new Act contains the definition section and amends the existing definitions to meet the new provisions of the Act.

ADMINISTRATION

Section 2 provides that the administration of the Act is under the control and direction of the Minister of Lands and Forests.

Section 3 continues the principle that the Act applies only in fire districts and does not affect rights of action for damages.

Section 4 authorizes the appointment of officers.

Section 5 authorizes officers, for the purposes of the Act, to enter into and upon any lands and premises, except that a search warrant is required to enter a dwelling unless the consent of the occupant is obtained.

Section 6 requires persons in a forest or woodland to provide an officer with information as to identity, routes to be followed, location of camps and other information pertaining to the protection of the forest or woodland from fire.

Section 7 provides that an officer may use privatelyowned equipment for controlling and extinguishing fires and for such purpose may summon male persons between 18 and 60 except persons providing essential services and persons physically unfit. The section also authorizes the taking of control and extinguishing procedures on private lands.

Section 8 provides for the appointment of fire wardens who have authority to enforce such provisions of the Act and regulations as are provided in the appointment. Appointments may be limited territorially.

Section 9 provides for the appointment of special officers who shall have authority to enforce the Act and the regulations on the land mentioned in the appointment. Subsection 2 provides that the owner of the land mentioned in the appointment shall reimburse the Department for salaries and expenses of special officers.

FIRE SEASON

Section 10 continues the period from the 1st of April to the 31st of October as a fire season.

FIRE PERMITS

Subsection 1 of section 11 continues the requirement of a fire permit, before a fire (other than a fire for the purpose of cooking or obtaining warmth) is started outdoors during a fire season.

Subsection 2 requires a fire permit for the ignition of fire works during the fire season in or within 1,000 feet of a forest or woodland.

The remainder of the section provides for the issue of fire permits which may be limited as to duration and

area, may contain terms and conditions, and ma cancelled or suspended at any time. After notic cancellation, all fires shall be extinguished.

RESTRICTED ZONES

Section 12 prohibits the starting of fires outdoors restricted fire zone for the purpose of cooking or taining warmth except in a portable stove or chainstallation.

Section 13 requires a forest travel permit for tr ling in a restricted travel zone except on public ronot including unopened road allowances, lands o Department of Highways, cities, towns, villages, pvillages, supervised camp grounds and waters adjato any of the foregoing areas. Such permits ma limited and contain terms and conditions and macancelled or suspended at any time.

Section 14 provides for notice of regulations elishing restricted fire zones and restricted travel z and shifts the onus to the person charged to provided not have actual notice of the regulations.



Beach and picnic area, Restoule Provincial Park.

ORK PERMITS

ection 15 requires a person to obtain a work permit efore, in or within 1,000 feet of a forest or woodland, errying on any logging, mining or industrial operation; earing land; constructing a dam, bridge or camp; perating a mill for the purpose of manufacturing timer; operating or carrying on any operation liable to use the accumulation of slash or debris.

Subsection 2 provides that a work permit may be nited as to duration and area, may contain terms of conditions and expires on March 31st next. Subsection 3 provides for the cancellation or suspension a work permit. Subsection 4 provides for a stop work der where an operation is conducted without a work permit and creates an additional penalty of \$100 a day reach day the operation is continued without a ork permit.

Subsection 5 provides that a work permit shall be otained by the person carrying on an operation rather an his servant, contractor, subcontractor or someone his behalf and makes such person liable for the fences committed by his servants, contractors, subcontractors or other persons in carrying out the peration.

REVENTION MEASURES

ection 16 requires the piling and burning of refuse here land is cleared.

Section 17 requires the removal of flammable debris om an area of at least 100 feet from camps, mines, mber mills and garbage dumps and provides that an ficer may make an order increasing the distance.

Section 18 authorizes an officer to order the owner person in control of land on which he finds any uildings, structure or equipment that may cause anger to life or property, to take such action as he eems necessary and upon any default, to remedy the ordition. Where action is taken, the cost and expenses the recoverable by the Crown.

Section 19 provides for agreements between the inister and Canada, any province of Canada, any gency of any of them or any municipality in respect to be prevention and control of forest fires.

KTINGUISHMENT OF FIRES

ection 20 authorizes an officer, in the interest of forest otection, to extinguish a fire or order a person in narge, or apparently in charge, of a fire to extinguish it.

Section 21 continues the principle that a municipality primarily responsible for the extinguishment of grass,

brush or forest fires within its limits. The section provides that this responsibility may be modified by an agreement under section 19. The section also provides that where an officer is of the opinion that the action taken by the municipality is not adequate, he may take such action as he deems necessary to control and extinguish the fire, and the cost and expenses thereof incurred by the Department are payable by the municipality, subject to subsection 2 which provides that where a fire starts on Crown lands, the Department shall bear such cost and expenses.

Section 22 requires a person who starts a fire outdoors, or who is in charge of a fire outdoors, that is not kept under control to report the fire without undue delay to an officer, and in any prosecution or action such person bears the onus of proof that he so reported the fire.

Section 23 enables the Minister in emergency situations to declare an area to be a forest fire emergency area and to make such orders and to take such action as he deems necessary for fire suppression or the safety or evacuation of persons. Any such order is not a regulation within the meaning of The Regulations Act.

OFFENCES

Sections 24 to 32 create a number of offences. These are,

- (a) obstruction of an officer in the performance of his duties (section 24);
- (b) refusal or neglect to provide equipment or assistance under section 7 (section 25);
- (c) accumulation of debris within half-mile of a village, town or city (section 26);
- (d) smoking while walking or working in a forest or woodland during the fire season (section 27);
- (e) dropping live coals or smoking material in or within 1,000 feet of a forest or woodland (section 28);
- (f) discharging a fire-arm or flare in or within 1,000 feet of a forest or woodland and leaving the residue unextinguished (section 29);
- (g) destruction of fire prevention notices or signs (section 30);
- (h) destruction of fire prevention equipment (section 31);
- (i) operation of burners, etc., without adequate spark arresting device in or within 1,000 feet of a forest or woodland (section 32).

Section 33 provides that orders, rules and directions of the Canadian Transport Commission and of the Rail-

way Transport Committee, respecting the prevention and control of fires, apply to railways that are subject to the legislative jurisdiction of Ontario.

PENALTIES

Subsection 1 of section 34 makes it an offence, punishable on summary conviction, to disobey, refuse or neglect to carry out any provision of the Act or the regulations or any order or any condition of a permit. The penalty is a fine of not more than \$1,000 or three months imprisonment or both. In addition, such person is liable to the Crown for the cost and expenses of controlling and extinguishing a fire caused by or resulting from such disobedience, refusal or neglect. Subsection 2 provides for the recovery of such expenses in a court of competent jurisdiction and also provides that where the amount claimed does not exceed \$1,000, the magistrate may order payment of the amount. Subsection 3 places the onus of proof of having a permit on the person charged.

REGULATIONS

Section 35 authorizes the Lieutenant Governor in Council to make regulations

- (a) establishing fire districts,
- (b) governing permits,
- (c) governing equipment, staff and precautions for any class of operation or activity,
- (d) governing the use of portable stoves or charcoal installations in a restricted fire zone,
- (e) prescribing forms,
- (f) necessary or incidental matters.

Section 36 authorizes the Minister to make regulations extending the fire season, establishing restricted fire zones and restricted travel zones, and fixing the rates of pay for fire fighters.

THE FOREST TREE PEST CONTROL ACT, 1968

This new Act provides a method whereby outbreaks of insects and diseases that are destructive to forest trees, and are designated by the regulations as forest tree pests, can be controlled.

Section 1 of the Act is the definition section.

Section 2 provides for the appointment of officers for the purpose of carrying out the Act.

Section 3 authorizes an officer to enter upon lands during daylight hours and make an inspection of the land and the trees and forest products thereon to detect and appraise an infestation, either actual or potential, by a forest tree pest.

Section 4 authorizes the Minister, where he deems it in the public interest, to direct the taking of control measures at the expense of the Crown.

Section 5 makes it an offence to obstruct an officer in the performance of his duty and provides for a fine of not more than \$1,000.

Section 6 authorizes the Lieutenant Governor in Council to make regulations designating forest tree pests for the purposes of the Act. Any such regulation may be limited territorially or as to time or otherwise.

Under section 7, this Act comes into force on proclamation.

THE ONTARIO GEOGRAPHIC NAMES BOARD ACT, 1968

This new Act authorizes the establishment of a geographic names board for Ontario.

Section 1 is the definition section.

Section 2 establishes the board, provides that it is composed of the Surveyor General, a secretary appointed by the Minister of Lands and Forests, and five other members appointed by the Lieutenant Governor in Council. The Minister may appoint one of the members as chairman and one as vice-chairman. The Lieutenant Governor in Council may determine the remuneration and expenses of members of the board.

Section 3 provides for the meetings of the board. These meetings are at the call of the chairman, and the chairman is required to appoint a time and place for a meeting on the request of three members. Four members are a quorum. This section also provides for the duties of the secretary and the powers of the board which are to,

- (a) gather information respecting names of places and geographical features in Ontario;
- (b) consult with public bodies;
- (c) make recommendations respecting names of places or geographical features;
- (d) collaborate with the Canadian Permanent Committee on Geographic Names;
- (e) provide information to government departments, publications, etc.; and
- (f) recommend names to the Minister.

Section 4 provides that the Minister may approve the name recommended by the board for a geographical feature and thereupon the name shall be used by all government departments and agencies in the preparation of maps and other publications.

Section 5 provides that the failure to use an approved name does not invalidate legal documents.

Section 6 provides that the Act comes into force on proclamation.

THE TAY TOWNSHIP ACT, 1968

This new Act confirmed the northerly boundary of Lot 19 in Concession XIV in the Township of Tay in the County of Simcoe as the high-water mark of the Severn River as surveyed by James G. Chewett, Deputy Surveyor and shown on Plan 35 in the office of the Surveyor General. It also confirmed that the northerly boundary of the lands granted to George Lount by letters patent, dated the 9th day of July, 1868, is and always has been the northerly boundary above-mentioned and that there is no Lot 20 in Concession XIV in Tay Township.

Section 2 provided for the registration of a copy of the Act in the Registry Office at Barrie.

Section 3 provided that no action may be brought but within six months after the day on which the Act came into force in respect of letters patent dated December 26, 1878, granting Lot 20 in Concession XIV in Tay Township to Archibald C. Thomson. This Act came into force on May 30, 1968.

THE CROWN TIMBER AMENDMENT ACT, 1968

Subsection 2 of section 6, subsection 1 of section 50, and clause c of section 52 of The Crown Timber Act were amended to change the name of fire protection charges and ground rent to forest protection charge and management charge, respectively. This amendment comes into force on April 1, 1969.

Subsection 2 of section 14 of the Act was amended to permit terms and conditions to be imposed where the operation of subsection 1 of section 14 of the Act is suspended.

A typographical error in section 22 of the Act was amended by inserting "not" after "has" in the seventh line.

Section 45 of the Act was amended by adding a subsection which provided that the granting of a mill licence does not imply an obligation on the part of the Minister to make Crown timber available for the mill.

Except as mentioned above, this Act came into force on May 30, 1968.

THE PROVINCIAL PARKS AMENDMENT ACT, 1968

The Provincial Parks Act was amended by adding section 3b which authorizes the Lieutenant Governor in Council to classify any provincial park as a natural

environmental park, a nature reserve park, a primiti park, a recreational park, a wild river park or such oth class of park as he may designate.

Section 4 of the Act was amended by adding sussection 1a which provided for the zoning of province parks into zones such as historic zone, multiple-uzone, natural zone, primitive zone, recreational zone otherwise.

Clause *n* of subsection 1 of section 15 of the Act wamended to extend the authority of the Lieutena Governor in Council to make regulations to include trequirement of the use of guides in provincial par Subsection 2 of section 15 was extended to permit tapplication of regulations to classes or zones of p vincial parks.

This Act came into force on May 30, 1968.

THE PUBLIC LANDS AMENDMENT ACT, 1968

Subsection 2 of section 37 of The Public Lands Act wamended to bring the name of the master of titles in line with recent changes in The Land Titles Act. Alt two exceptions were added to the general principle this section that Crown grants of lands, in areas when The Land Titles Act applies, shall be forwarded to the master of titles.

Subsection 3a provided that timber releases, und subsection 2 of section 63 of The Public Lands Act, of grant of minerals under The Canada Company's La Act, 1922, shall be forwarded to the office in which the land affected is registered.

Subsection 3b provides that where an instrume affecting any public lands has been previously reg tered, and a subsequent Crown grant is made, t Minister has the discretion to forward it to the mass of titles or registrar of deeds.

Subsection 4 was amended to bring it in line with tother amendments.

Part 1A, including sections 43d to 43k inclusive, wadded to the Act to establish provisions governing roa on public lands other than roads administered by to Department of Highways, statute labour boards, loroads boards and municipalities.

Section 43*d* is the definition section and, in additi to defining "road" to mean a road on public lar other than those hereinbefore mentioned, defir "private forest road" as a road occupied under authority of a document issued under the Act or regulations, and a "public forest road" as a road, ot than a private forest road, designated by the Minis as a public forest road.



he view from camping area, Oastler Lake Provincial ark.

Section 43e provided that, with the exceptions conined in Part 1A, there is a public right of passage on I roads other than private forest roads.

Section 43f provides that no civil action may be rought in respect of the construction, maintenance, epair or closing of a road other than an action based a contract between the parties to the action for the construction, maintenance or use of a road.

Section 43g authorizes the Minister to designate a pad, other than a private forest road, as a public forest pad and provides that The Regulations Act does not apply to such a designation.

Section 43h deals with public forest roads. Subsection 1 authorizes the district forester to close a public forest road to travel by the public generally or by any class or classes of the public or by the public generally with the exception of persons operating any class or classes of vehicles used for hauling forest products or other products designated by the regulations. Subsection 2 provides that the closing may be effected by the erection of signs or barricades. Subsection 3 requires the erection of signs and lights on closed public forest roads. Subsection 4 authorizes the district forester to issue special permits for travel notwithstanding the closure of the road. Subsection 5 created an offence for removal or defacing of barricades, lights and notices and provided for a fine of not more than \$500 and recovery of the damages by the Crown.

Under section 43*i*, where a district forester closes a public forest road to the public generally, with the exception of persons operating haul vehicles, sections 45, 52, 53, 54, 55 and 58 of The Highway Traffic Act do not apply to the public forest road or to vehicles operated thereon.

Section 43i deals with private forest roads and provided that, subject to the exceptions, these roads are not open to travel by the public. Under subsection 2, the Minister may enter into an agreement with the occupier of a private forest road permitting general or partial public use of the road subject to terms and conditions, provided that vehicles used in such travel are registered under The Highway Traffic Act, Such an agreement may provide for the sharing of the cost of constructing, reconstructing or maintaining the private road. The use by the public does not change a private forest road into a public road, but under subsection 4, the provisions of The Loggers' Safety Act, 1962-63, and the regulations thereunder respecting haul roads apply to the road. Although opened to the public, the district forester may close such roads except to the vehicles of the occupier.

Under section 43k, the Lieutenant Governor in Council may make regulations extending the type of products for the purposes of sections 43h, 43i and 43j.

Subsection 3 of section 63 of The Public Lands Act, being no longer required by reason of the amendments to section 37, was repealed.

The habendum in letters patent dated the 1st day of December, 1900, granting part of the southwest half of the west half of Lot 13 in Concession III in the Township of Houghton in the County of Norfolk to Alvin Griffin and others, was amended to the condition "It is a con-

dition of these letters patent that the land shall be used only for church purposes".

This Act came into force on May 30, 1968.

THE RAILWAY FIRE CHARGE AMENDMENT ACT, 1968

Subsection 1 of section 3 of The Railway Fire Charge Act was amended to increase the maximum charge under the Act from \$15 to \$30. This Act came into force on May 30, 1968.

THE SURVEYS AMENDMENT ACT, 1968

Clause a of section 34 of The Surveys Act was amended by adding the townships of Cumming, Idington, O'Brien, Owens and Williamson in the Territorial District of Cochrane to the classes of township provided for by that clause which permits the establishment of side lines of lots on the astronomic course shown on the original plan. Clause b of that section was amended to delete the five townships from the principle contained in this clause that the side lines of lots should be established by the astronomic course of the governing side line.

Subsection 2 of section 48 of the Act, which deals with the confirmation of municipal surveys, was amended to make the subsection subject to a new section 48a. A new subsection was added to section 48 to require the Minister to mail a copy of the plan and field notes of a confirmed survey to the municipality and every person who appeared at the hearing within 10 days of confirmation. Subsection 4 of that section was repealed, the principle being re-enacted in the new section 48a at the appropriate stage of the procedure.

A new section 48a was added to the Act permitting any person objecting to the confirmation of a survey to appeal to a judge of the Supreme Court who may decide the matter on the evidence before him or direct the trial of an issue or dismiss the appeal or order amendments. Notice of the appeal must be served on the Minister within 30 days of the date of confirmation of the survey. Thirty days after confirmation of a survey or disposal of an appeal, the Minister is required to register the plan of survey in the appropriate registry office and file a copy with the clerk of the municipality.

Subsection 3 of section 49 of the Act was re-enacted to make the right of appeal to a judge of the Supreme Court applicable to a survey applied for by an owner in unorganized territory. Subsection 1 of section 51 was similarly re-enacted to make the right of appeal applicable to a Crown re-survey.

This Act came into force on May 30, 1968.

REGULATIONS

Thirty-nine regulations, made under the authority of Acts administered by the Department of Lands and Forests, were made and filed during the fiscal year from April 1st, 1967, to March 31st, 1968.

	TIMBER ACT —Amends Reg. 69 of R.R.O. 1960	General.
	FIRES PREVENTION ACT —Amends Reg. 184 of R.R.O. 1960.	. Fire Districts.
THE FORESTR O. Reg. 51/68-	Y ACT —Amends Reg. 185 of R.R.O. 1960.	. Nurseries.
THE GAME A	ND FISH ACT, 1961-62	
	-Amending O. Reg. 22/65	. Crown Game Preserve— Peterborough.
O. Reg. 127/67—	-Revokes O. Reg. 153/63	. Hunting by Aircraft.
O. Reg. 208/67—	-Revoking Regulations	. Fish Sanctuaries.
O. Reg. 271/67—	-New	. Discharge of Fire-arms from or Across Highways and Roads.
O. Reg. 272/67—	-Revokes O. Regs. 253/66 and 330/66	. Open Seasons—Game Birds.
O. Reg. 273/67—	-Amending O. Reg. 342/66	. Hunting on Crown Lands— Gananoque Provincial Hunting Area.
O. Reg. 274/67—	-Amends O. Regs. 310/63 and 250/64	.Hunting on Crown Lands—Earl Rowe Provincial Park.
O. Reg. 294/67—	-Revokes O. Reg. 288/66	. Open Seasons—Rabbit and Squirrel.
O. Reg. 295/67—	-Revokes O. Regs. 9/66, 37/66 and 314/66	. Open Season—Fur-Bearing Animals.
O. Reg. 314/67—	-Amends O. Reg. 229/63	. Hunting Licences—Issuance.
O. Reg. 315/67—	-Revokes O. Reg. 22/65	. Crown Game Preserve—Kettle Creek.
	-New	
		Squirrel.
		and Black Bear.
O. Reg. 369/67—	Amends O. Reg. 272/67	Open Seasons—Game Birds.

O. Reg. 375/67—Amends O. Regs. 139/65
and 334/66Open Seasons—Deer, Moose and Black Bear.
O. Reg. 384/67—Amends O. Reg. 375/67 Open Seasons—Deer, Moose and Black Bear.
O. Reg. 441/67—Amends O. Reg. 272/67 Open Seasons—Game Birds.
O. Reg. 442/67—Amends O. Reg.46/65Fishing Licences.
O. Reg. 14/68—Revokes O. Reg. 94/64 Hunter Safety Training Cours
O. Reg. 15/68—Revokes Reg. 199 of R.R.O. 1960 Game Bird Hunting Preserves
O. Reg. 16/68—Revokes Reg. 200 of R.R.O. 1960 and O. Reg. 238/65 Bobwhite Quail and Pheasan Propagation and Sale.
O. Reg. 17/68—Amends O. Reg. 77/67 Hunting Licences—Issuance.
O. Reg. 88/68—Amends O. Reg. 22/65 Crown Game Preserves—Ket Creek.
THE PROVINCIAL LAND TAX ACT, 1961-62 O. Reg. 190/67—Amends O. Reg. 343/62
THE PUBLIC LANDS ACT O. Reg. 137/67—New
O. Reg. 138/67—New
O. Reg. 275/67—New
O. Reg. 430/67—New
THE WOODLANDS IMPROVEMENT ACT, 1966

O. Reg. 395/68—Amends O. Reg. 244/66 General.

ORDERS-IN-COUNCIL

ecommended by the Minister of Lands and Forests in the Year 1967-68

	wn timber /				e and fish A			THE PROVINCIAL LAND TAX ACT, 1961-62
305/67	2359/67	3584/67	5056/67	1293/67	3704/67	4712/67	276/68	2050/68
387/67	2524/67	3585/67	5120/67	1300/67	3761/67	5292/67	1027/68	THE PROVINCIAL PARKS ACT
753/67	2525/67	3586/67	5326/67	3192/67	3862/67	5297/67	1380/68	
781/67	2540/67	3588/67	5327/67	3202/67	4270/67	196/68	1382/68	2397/67 3112/67 405/68 1383/68
782/67	2630/67	3589/67	5337/67	3203/67	4520/67	210/68		2876/67 4333/67
783/67	2695/67	3590/67	5358/67	3204/67	4597/67	211/68		THE ST. CLAIR PARKWAY
784/67	2731/67	3712/67	5362/67	THE INTE	RPRETATION	ACT		COMMISSION ACT, 1966
788/67	2822/67	3715/67	91/68 92/68		4957/67	5/68		485/68
789/67 790/67	2859/67	3716/67		4818/67	493//6/	3/00		403/00
802/67	2861/67	3722/67 3723/67	125/68 137/68	THE LAKE	OF THE WO	ODS		THE WOODLANDS IMPROVEMENT ACT, 1966
803/67	2862/67 2863/67	3758/67	139/68		L BOARD ACT			4811/67
804/67	2864/67	3774/67	237/68	444/68		-,		
805/67	2865/67	3873/67	342/68					
867/67	2883/67	4113/67	344/68	THE MUN	VICIPAL ACT			
868/67	2946/67	4115/67	368/68	1814/67	5141/67	357/68	566/68	
894/67	2951/67	4118/67	377/68	4999/67				
895/67	2999/67	4120/67	397/68					
896/67	3189/67	4122/67	402/68	THE PUBI	lic lands ac	JT		
967/67	3190/67	4145/67	443/68	1303/67	2546/67	4534/67	101/68	
997/67	3191/67	4295/67	474/68	1309/67	2590/67	4538/67	138/68	
1022/67	3252/67	4505/67	502/68	1405/67	2825/67	4539/67	214/68	
1080/67	3253/67	4506/67	564/68	1556/67	2882/67	4545/67	242/68	
1092/67	3254/67	4521/67	596/68	1558/67	2924/67	4648/67	289/68	
093/67	3326/67	4522/67	647/68	1615/67	2992/67	4837/67	378/68	
218/67	3327/67	4596/67	871/68	1688/67	3014/67	4839/67	478/68	
230/67	3328/67	4614/67	873/68	1739/67	3207/67	4915/67	485/68	
328/67	3329/67	4633/67	1002/68	1745/67	3208/67	4918/67	571/68	
1329/67	3331/67	4690/67	1061/68	1815/67	3209/67	4936/67	573/68	
330/67	3426/67	4733/67	1085/68	1816/67	3215/67	5053/67	577/68	
331/67	3427/67	4739/67	1290/68	1818/67	3323/67	5095/67	664/68	
2353/67	3430/67	4787/67	1357/68	1823/67	3333/67	5099/67	815/68	
354/67	3467/67	4938/67	1358/68	1960/67	3828/67	5104/67	886/68	
2355/67	3475/67	4998/67	1361/68	2044/67	3830/67	5130/67	940/68	
				2055/67	3831/67	5145/67	1057/68	
THE EXEC	UTIVE COUN	CII ACT		2057/67	3832/67	5162/67	1102/68	
1912/67			400/60	2303/67	3868/67	5293/67	1264/68	
2063/67	5095/67	5104/67	489/68	2307/67	4518/67	5294/67	1328/68	
.063/6/				2455/67	4533/67	31/68	1370/68	
	CT FIDEC DDEN	ENITION ACT		THE ONT	ARIO NORTH	LAND		
	ST FIRES PREV	ENTION ACT				MMISSION AC	T	
827/67				3964/67	4132/67	4139/67	4819/67	
THE CORE	CTDV ACT							
	STRY ACT				IC SERVICE A			
795/68				988/68	989/68	990/68		

FEDERAL-PROVINCIAL CO-OPERATIVE AGREEMENTS

ACCESS ROAD AT GAMEBRIDGE

By an agreement dated the 29th day of May, 1967, between Her Majesty the Queen in right of Canada, as represented by the Minister of Transport and Her Majesty the Queen in right of the Province of Ontario, represented by the Minister of Lands and Forests, Canada granted permission to Ontario to construct and maintain an access road, a fence and signs on and across Trent Canal lands near Lock Number 41 at Gamebridge in Lot 11 in Concession X in the Township of Thorah in the County of Ontario. The Province agreed to maintain, renew and keep in repair the road, fence and signs and to assume all liability and obligation in connection therewith. Through the agreement, the Province was enabled to construct a road to the Gamebridge access point on the Talbot River.

RADIO ANTENNAE AGREEMENT

By an agreement dated the 6th day of October, 1967, between Her Majesty the Queen in right of Ontario, as represented by the Minister of Lands and Forests, and Canadian Broadcasting Corporation, the Province agreed to transfer location PP 810 in the Township of Croll in the District of Thunder Bay, containing 22.957 acres, to the Corporation, and the Corporation agreed to permit the Crown to use the satellite television broadcasting tower for the purpose of attaching radio antennae or other related equipment subject to terms and conditions that may be agreed upon or determined by arbitration.

RADIO ANTENNAE AGREEMENT

By an agreement dated the 6th day of October, 1967, between Her Majesty the Queen in right of Ontario, as represented by the Minister of Lands and Forests, and Canadian Broadcasting Corporation, the Province agreed to transfer location PP 811 in the Township of Croll in the District of Thunder Bay, containing 23.281, acres to the Corporation, and the Corporation agreed to permit the Crown to use the satellite television broadcasting tower for the purpose of attaching radio antennae or other related equipment subject to terms and conditions that may be agreed upon or determined by arbitration.

GREAT LAKES FISHERIES RESEARCH

By an exchange of letters between the Minister of Fisheries, dated October 23rd, 1967, and the Minister of Lands and Forests, dated November 7th, 1967, Canada

(Department of Fisheries) and Ontario (Department of Lands and Forests) agreed to amend the existing areas of responsibility for fisheries research in the Great Lakes as follows:

CANADA WILL ASSUME RESPONSIBILITY FOR:-

- 1. Lamprey research and control programmes in the Great Lakes.
- 2. Such studies in Ontario waters as may be recommended by the Federal-Provincial Committee for Ontario Fisheries, subject to availability of personnel and funds.
- 3. A general research programme on eutrophication.
- 4. Technological research related to the development of new products and of new techniques for handling, packaging, preparing and storing freshwater fisheries products.
- 5. Economics studies of Ontario fisheries upon request by provincial authorities, subject to the limitations of staff and budget.
- 6. The administration of federal fish inspection legislation within the Province and assist the provincial authorities in the administration of provincial fish inspection regulations.

ONTARIO WILL ASSUME RESPONSIBILITY FOR:—

- 1. General fisheries research in support of its fisheries management responsibilities in all Ontario waters.
- 2. Co-operation with the federal programme on eutrophication by making small lakes available for experimental work if mutually satisfactory arrangements can be made. The research required to provide solutions to local eutrophication problems in specific waters will remain the responsibility of Ontario.
- 3. Gathering, summarizing and analyzing sport and commercial fisheries statistics.
- 4. Fish culture programmes in the Province (professional and technical officers of the Federal Government competent in this field will be made available for consultation or assistance upon request).

Canada agreed to co-operate with Ontario on a costsharing basis in projects proposed by Ontario in developments of the industrial fishery such as exploratory fishing, gear and boat development, fish farming, handling, processing and distribution or marketing of fisheries products on the basis that priorities are considered by the Industrial Development Subcommittee and funds are available.





OPERATIONS BRANCH

OBJECTIVES

- 1. To promote public understanding of Department activities and objectives in the management of Ontario's renewable, natural resources.
- 2. To develop and promote good safety practices in forest work, in recreational activities on public lands and waters, and in all Department operations.
- 3. To effect efficiency in purchasing and in other, assigned services performed for branches and field offices.

ORGANIZATION

Operations Branch is divided into six sections with duties and responsibilities as follows.

Office Management: Inventory of major equipment; licensing of boats; production of circulars and bulletins; Crown land records and microfilming; Branch budget estimates and allotments; staff records and processing; and uniform records and issues.

Purchasing: Purchasing of equipment, supplies and services; filling requisitions; leases and rentals; and arrangements for travel and conferences.

Central Supply Warehouse: Receipt, security and distribution of equipment, supplies, uniforms and printed material; duplicating and collating of forms, letters, bills and reports; and promotion of foreign state visits.

Conservation Information: Publications; weekly newsletter and press releases; material for outside agencies; display and classified advertisements; photo, slide and cut services; reference library and clipping service; and supply of information to public.

Conservation Education: Display material for Department exhibits; production and purchase of motion films; film supply service; program material for radio and television; and lecture service.

Accident Control: Administration of The Loggers' Safety Act; Hunter Safety Program; safety program in Provincial Parks; staff safety and first aid programs; and Workmen's Compensation.

OFFICE MANAGEMENT SECTION

During the fiscal year, the preparation, revision and allotment of operating funds were continued. The inventory of the Department's major equipment included trucks, cars, boats, canoes, power plants and shop machines. Staff records were maintained, and recommendations were processed.

Records were kept of the 1,380 on staff, including Parks seasonal staff, who wear the Department uniform. New requirements were included in the estimates for the next fiscal year.

The Records Office houses records pertinent to all Crown lands of the Province. Here, duties included the assembly, indexing and classification of all incoming correspondence, and the compilation and distribution of new files.

To license Department boats, communication was maintained with the federal Department of Transport. Some marine units of the Department require only a licence number, while others need a registration certificate.

Various special assignments were carried out.

PURCHASING SECTION

Supplies, such as stationery and other office needs, were purchased in quantities based on consumption rates; they were stored in quantities in the warehouse and shipped upon requisition. Equipment and supplies of larger bulk (trucks, boats, hose, furniture, chemicals, etc.) were purchased on requisition from field offices and shipped directly to their destination.

As applicable, the requirements of all ten Branches were supplied from warehouse stock or purchased directly.

Beach and safe swimming area, Fairbank Provincial Park

CENTRAL SUPPLY WAREHOUSE SECTION

During the fiscal year, the Section received a total of 3 tons of supplies and equipment and shipped a total 244 tons. Shipments were made by express, freig transport and mail, and by internal supply to Department offices.

The Section participated actively on the commit responsible for the reception of state visitors and gernment experts.

Thirty types of licences were distributed to distributed soffices and more than 3,000 licence issuers on 15,2 invoices. The 2,000,000 licences included hunting, agling, bait fish, roll net, dip net, frog, guide, trapping trap-line, and dog licences.

The distribution of Provincial Park permits include 168,900 annual vehicle permits, 378,000 daily permand 304,900 campsite permits. 290,500 fur seals we distributed.

Department uniforms were stocked and delivered personnel on requisition.



ONSERVATION NFORMATION SECTION

uring the past fiscal year, the Section worked through any media to disseminate information on the proction and management of the renewable, natural sources under the Department's administration.

ELEASES

ery week, a newsletter of several pages circulated epartment news and regulations in a form easily lapted by outside agencies. The mailing list of 3,800 cluded all newspapers, broadcasting stations and outpor writers in Ontario, as well as magazines, trade apers, forest industries, conservation groups, recreational clubs and associations, and a number of writers and commentators outside the Province. Each issue cared a list of coming events of interest to recreational, dustrial and scientific groups.

The French translation of the newsletter had a weekly reulation of 182.

News of more than normal urgency was supplied rectly to important news outlets by special press re-

Each season, Conservation Copy provided additional aterial for writers and publications, while Conservator Spots supplied public service announcements to coadcasters.

Special appeals were prepared for news media in ason to enlist public support of Lands and Forests rograms, principally in forest fire prevention and hunrafety.

Editorial services increased the concentration of conrivation messages. Articles and background material ere prepared for outside agencies on request. Speech aterial was prepared for Department personnel inted to address public meetings.

ERVICES

ne Photograph Library loaned 9,500 black-and-white rints and 1,000 colour transparencies to newspapers and magazines during the year. Sets of slides or prints ere supplied on request to illustrate lectures. The ligary now has 38,000 negatives and 5,200 colour transparencies.

Section photographers took photographs on assignent and supplied prints from the darkroom at short office.

During the year, 35,900 answers were returned by lail to persons requesting information on Crown land,

outdoor recreation, nature study, forest industry and forest tree planting. In addition, numerous requests were answered by telephone.

To call for tenders on timber cutting, etc., 225 advertisements were placed in 45 newspapers during the year.

The Reference Library circulated periodicals and press clippings.

PERIODICALS

The first issue of "The Ontario Commercial Fisherman" was released in August, 1967. The new periodical, to be published "from time to time", supplements the information in the quarterly, "Ontario Fish and Wildlife Review", which first appeared in the summer of 1961.

NEW PUBLICATIONS

Scientific papers, management reports and training manuals are not included in the following list of publications released during the past fiscal year.

FISH AND WILDLIFE

Wolves and Coyotes in Ontario

Ontario Snakes

The Deer Hunt in Ontario

The Moose Hunt in Ontario

The Spring Bear Hunt in Ontario

The Game and Fish Act and the Ontario Fishery Regulations

Summary of the Ontario Fishery Regulations

Summary of the Ontario Hunting Regulations

Provisional Summary of Big Game Hunting Seasons in Ontario

Summary of the Ontario Regulations Which Apply to Trapping and Fur-Dealing

OUTDOOR RECREATION

How to Qualify for a Hunting Licence in Ontario

A Time to Live and A Time to Die

Recommendations for Control of Mosquitoes and Black Flies in Ontario

PROVINCIAL PARKS

Algonquin Provincial Park (map folder)

Check-List of the Fishes, Amphibians and Reptiles of Algonquin Provincial Park (revised)

Check-List of the Butterflies of Algonquin Provincial Park (revised)

FORESTS

Report of the Forestry Study Unit (\$10.00) (Condensation, \$1.50)

Planning for Tree Planting in Ontario (revised)

Farm Forestry Service for You (revised)

Johnny Acorn Says (revised)

Let Me See How Paper Is Made

HISTORY

A History of Sudbury Forest District

A History of Pembroke Forest District

ADMINISTRATION

Annual Report of the Minister of Lands and Forests

Part I — Detailed

Part II — Highlights

A Statistical Reference of Lands and Forests Administration

Ontario Junior Forest Ranger Program

Eight Weeks in the Woods (Junior Rangers) (revised)

Ontario Forest Technical School (Prospectus)

Ontario Forest Technical School Year Book.

CONSERVATION EDUCATION SECTION

The Section conducts an educational program which consists of the type of appeals calculated to attract public interest and explain in easily understandable terms the need for the wise use of renewable, natural resources.

VISUAL EDUCATION

The Section's film library contains 255 titles with two or more prints of many of the titles. All films are available for loan to field offices upon request. During the year, approximately 1,750 films were shipped to field offices. Each district has its own projection equipment, and each has access to regional film libraries as well as the head office film library.

The Section also loaned 16mm motion picture projectors, 35mm slide projectors, screens and films to Provincial Parks offering an interpretative program to the public during the summer months.

During the year, the following films were added to head office and field film libraries:—

At Home with Guns Beaver Valley Big Four — Outdoor Heritage Breath of Spring Camouflage: Nature's Protection Crew Boss Death is a Careless Hunter Deer Family of North America Ducks, of Course **Enduring Wilderness** Headwaters Ice Safety I'm No Fool in Water Journey into Time The Kokanee Salmon The Litterbug Living Traps Nature's Half Acre The Persistent Seed A Place to Stand The Seasons Seeds to Trees Snookie - Adventures of a Black Bear Cub Spring Nature Hike

Succession — From Sand Dune to Forest

All ages enjoyed the Department's exhibit at the Canadian National Sportsmen's Show, Toronto, March, 1968.



Sure as Shooting Tomorrow We Hunt Training Fire Pump Crews Trigger Happy Harry Whitethroat Universe.

Several thousand feet of motion picture film vavailable for use by television stations in Ontario addition, a set of ten one-minute television shorts valistributed to Ontario television stations, cove safety tips on boating, snowmobiles, hunting (surrand safety), winter clothing and poison ivy.

A new training film, entitled "Training Fire Po Crews", and the nursery film, "Seeds to Trees", v completed.

RADIO AND TELEVISION

Radio and television stations throughout the Prov have been most generous in their donations of time to the Department, and District offices regu take advantage of these opportunities to reach public.

EXHIBITS

Visual conservation appeals are featured in the Derment's exhibits at many of the shows and fairs in tario. The major exhibits handled through this Secwere as follows:—

Canadian National Exhibition, Toronto: Our exh space in the Ontario Government Building underw a complete face-lifting for 1967 Centennial Year. entire courtyard was completely rebuilt. A new aquarium, 100 feet in length with provision to divide into 20 separate tanks, was built. Above these tanks safety cartoon panels and 10 panels of the wood Ontario. A new, portable building, including 22 cafor animals and birds, was constructed of many Ontwoods.

Other exhibits featured were 100 Years of Recrea and 100 Years of Forestry in Ontario using paper so ture, Ojibway Indians demonstrating their skill vleather and beadwork, snakes and turtles of Ontahunter safety training, Crown land cottage sites, a donstration of papermaking, wild fur of Ontario, an animated Tower Jack giving warnings of forest dangers. A map of Ontario, made from the hardwoof Ontario, was featured at our information desk.

The Conservation Poster Contest for elemen school children, from six to fourteen years of age, held again this year. A Grand Prize of \$100.00 was a sented for the best poster. First, second and the prizes, in each of three age groups, in the amount

0.00, \$25.00 and \$15.00, were awarded. Thirty "Honrable Mentions", ten in each age group, were prented with books.

nadian National Sportsmen's Show, Toronto: Our nibit featured the fish and wildlife pavilion. Birds, akes, surveys, Tower Jack, parks, hunter safety, the of Ontario, and a photographic display of careers d logging in Ontario were also featured.

ntral Canada Exhibition, Ottawa: Our exhibit conted of animals, while a photographic story of 100 ars of Forestry in Ontario and the Woodland Improvement Act was shown.

yal Agricultural Winter Fair, Toronto: Our exhibit stured the story of reforestation from the initial ges — i.e., cones, seeds, seedlings, through to shiping to the woodlot owner — and the proper planting ethods were demonstrated. A talk was given by resters to organized school classes visiting with their achers. Animals were also featured.

d to Districts: Full cooperation was given to District fices participating in sportsmen's shows and agricultal fairs such as the Western Fair at London, the Intertional Plowing Match at Barrie, the Timmins Sportsmen's Show, and the Chatham Sportsmen's Show.

hibit Awards: Our exhibit in the Canadian National hibition won the International Award for "Exhibit cellence" at the American Association for Consertion Information annual meeting in June, 1967.

CTURE TOURS

e Department kept in touch with the public through h and game associations, schools, church groups, rvice clubs and youth organizations. Illustrated lectes were given on all aspects of the Department's ork.

A total of 3,108 lectures was given to audiences totalg 239,048 during the past fiscal year. The totals inided 892 lectures to 96.371 school children and 836 tures given by Ontario Forestry Association personnel 29,254 persons.

e Ontario Conservation Trophy, awarded posthupusly to R. V. Whelan, Supervisor of Conservation cormation Section, by the Federation of Ontario turalists, April 25, 1967.



ACCIDENT CONTROL SECTION

THE LOGGERS' SAFETY ACT

During the fiscal year, the Department's ten Accident Control officers inspected 3,242 logging operations. They issued many warnings and found it necessary to apply five Stop Work orders for infringement of the Act.

The officers investigated 19 fatalities and 1,747 non-fatal accidents. Compared with the previous year, this was an increase of four fatalities but a decrease of 541 non-fatal accidents.

The officers attended 105 meetings in the interest of the application and enforcement of the Act and to stress the value of safety education in the logging industry.

A program of safety education, consisting of seminars for foremen and supervisors in the logging industry, is being considered as it is believed it will lead to a reduction in the accident frequency rate.

HUNTER TRAINING PROGRAM

This program was initiated on a voluntary basis in 1957 to teach safe gun handling and safe practices in the field. Game and fish clubs agreed to supply instructors and give the course to new hunters. In remote areas, the teaching became the responsibility of the Department.

On September 1, 1960, the course became mandatory for all new hunters. Since January 1, 1968, when all new hunters have been required to pass a standard examination, the course has been mandatory for all young hunters below the age of twenty years.

Applications for the position of instructor are screened at district offices which supply approved candidates with manuals, literature, report cards, certificates of competence, safety posters, etc. Brassards are supplied from head office. The instructors are covered by liability insurance.

Instructors' workshops are held frequently so that problems can be solved, policy explained, and new teaching methods demonstrated. Films, slides and defective firearms are loaned to instructors for classroom demonstration.

Game and fish clubs instruct approximately 54 per cent of the students, the remainder being trained by organizations such as the Boy Scouts, service clubs, cadet corps, and the Royal Canadian Legion.

In 1967, the course was completed successfully by 16,349 students; 1,741 instructors were registered with the Department.

In 1967, hunting accidents numbered 112: 13 fatal and 99 non-fatal.

SAFFTY IN PROVINCIAL PARKS

Accident Control officers make frequent inspections in Provincial Parks in season, reporting on hazardous objects and unsafe conditions where people congregate. Their findings are brought to the attention of the District Forester and Park Superintendent for remedial action. (The Section is not responsible for the beach patrol maintained in Provincial Parks.)

During the months, July to September, the Department sponsored a Water Safety Demonstration program that was presented by the Ontario Safety League in most of the 94 parks. The demonstrations were viewed by 160,000 park visitors.

WORKMEN'S COMPENSATION

The number of compensable claims during the fiscal year was 716, an increase of 128 over the previous year. The cost of the claims was \$143,317.61, an average of \$200.16 per claim, an increase of approximately \$41.00 on the year.

Pension costs amounted to \$56,983.47 and administrative costs to \$16,484.16, bringing the total cost of Department claims to \$216,785.24, an increase of \$45,469.77 on the year. Medical aid and compensation increased by \$47,606.89 and administration by \$3,532.79 while pension costs decreased by \$5,881.27.

Fire fighting costs amounted to \$8,256.74, more than double the costs in the previous year. Junior Ranger injuries and costs remained at the same level.

One pension was established for the dependants of one of four employees who died during the year. Four pensions for permanent disability were established, and one was made retroactive to 1964.

The Injury Frequency Rate was 15.7, an increase from 13.8 in 1966-67 and from 13.5 in 1965-66. The rate refers to compensable injuries which require a lay-off from work of more than two calendar days.

The Lands and Forests Safety Trophy was won by White River Forest District with a 1967-68 record of two compensable, lost-time injuries in 35,837 man-days worked, giving an Injury Frequency Rate of 5.6.





RESEARCH BRANCH

OBIECTIVES

- 1. To provide management branches with useful, tested information on forest, fishery and wildlife resources.
- 2. To develop management techniques.

ORGANIZATION

The Research Branch is divided into four Sections and their subordinate units with the following functions and responsibilities.

FISHERIES SECTION

Great Lakes Units: Lake Ontario (Glenora), Lake Erie (Wheatley), Lake Huron (South Bay Mouth), and Lake Superior (Sault Ste. Marie).

Game Fish Units: Lake Trout (Maple), Brook Trout (Algonquin Park), Smallmouth Bass (Maple), Walleye (Port Arthur), and Kokanee (Maple).

Disciplines Units: Selective Breeding, Splake (Maple and Sault Ste. Marie), Parasitology (Maple), Limnology (Maple), and Productivity (Port Arthur).

FORESTRY SECTION

Silviculture Unit: Studies of forest culture, reproduction and growth of important tree species and associated vegetation; logging effects on forest stands; cultural herbicides; controlled fires; and seeding and planting.

Site Unit: Evaluation of soil features, climate and nutrients.

Tree Breeding Unit: Selection and breeding of forest trees of superior quality and resistance to disease.

Reforestation Unit: Studies of nursery problems and of planting and care of plantations.

Other units: Wood quality; forest mensuration and statistics; and forest economics.

WILDLIFE SECTION

Big Game Unit: White-tailed deer, moose and woodland caribou.

Predator Unit: Timber wolves.

Upland Game and Waterfowl Unit: Small animals and birds, such as rabbits and pheasants.

Diseases and Parasites Unit: Identification, frequency, distribution and effects.

Furbearer Unit: Habits, behaviour and effects of environment on animals such as beaver and marten.

MECHANICAL SECTION

Development, improvement and testing of equipment and instruments to meet special needs of Department.

FISHERIES SECTION

A revised agreement concerning fisheries in Ontario was achieved with the Government of Canada. Among the more important terms were: (1) Ontario will resume responsibility for the fisheries research program on Lake Superior; and (2) the Fisheries Research Board of Canada will undertake a major program of research in eutrophication (the rapid aging or enrichment of waters, sometimes called pollution).

GREAT LAKES PROGRAMS

LAKE ONTARIO

The intensive, long-term studies of whitefish, to determine the influences of environmental changes, and of improvements in fishing technology on the abundance of this species, are bearing fruit in the form of important guidelines for future management of whitefish in all the Great Lakes.

The lake trout study, a co-operative effort with New York State, was terminated. In spite of good initial survival and growth of planted trout, none survived to maturity, mainly because of sea lamprey predation.

A new series of tests, using the hybrid, splake, is being initiated to answer the question, "Can salmonids still spawn successfully on Lake Ontario shoals?"

Studies of the American eel, white perch and kokanee continued.

LAKE ERIE

Walleye data and financial support were contributed to an exhaustive analysis of information available from several agencies surrounding Lake Erie arranged through the Great Lakes Fishery Commission. The preliminary report provided new insight into the causes of the decline of this species in Lake Erie, provided general guidelines for management, and suggested new avenues for productive research. Our research program has been increased in the directions suggested.

Smelt studies, dealing with food habits, distribution and with the factors causing strong, and weak, year classes, continued.

The broad and complex problem of the effects of changing environment (greatly enriched water) on fish stocks is of particular significance in Lake Erie and Lake Ontario but is as yet receiving little direct attention.

LAKE HURON

Plans for the major program of rehabilitating Lake Huron's trout population, using the highly selected splake, are nearing completion for its start in 1969, coincident with sea lamprey control. Former lake trout spawning grounds have been charted to form the basis for splake planting locations. Brood stocks of highly selected splake are being added to annually, and the first progeny for the planting program have been produced from these brood fish.

Studies of the growth, movement, survival and feeding of experimental plantings of the splake continued to provide grounds for optimism that this early-maturing hybrid will quickly provide a new and stable base for a trout fishery in Lake Huron. Some hybrids are reaching ten pounds in four years in spite of the presence of sea lampreys.

The experimental introduction of kokanee, begun in 1964-65, achieved a major initial success. The first year class planted returned at age three in good numbers (5000 — Blue Jay Creek, Manitoulin Island) and reproduced successfully. It should be remembered that, although the kokanee is of modest size at maturity, it is known to be able to reproduce successfully in fresh water. Other salmons (coho and chinook) are more spectacular in size but can be maintained only by continued, and expensive, yearling plantings.

Studies of the movements and survival of young-ofthe-year whitefish, and of the competition they face during their first year of life, are progressing well in South Bay.

LAKE SUPERIOR

The responsibility for research on this lake returned to the province, after a ten-year interval, in 1967. Headquarters for the new staff and program have been established at Sault Ste. Marie, and newly recruited staff were integrated, operationally, with the retiring Fisheries Research Board staff.

Particular attention will be given to the recovery of the various sub-populations of lake trout as the largescale planting program, subsequent to sea lamprey control, continues. The resumption of effective natural spawning, in the face of the residual lamprey population, requires close assessment.

GAME FISH PROGRAMS

Studies directed towards improved management of lake trout, brook trout, smallmouth bass and walleye continued. No new programs were started, though consideration is being given to development of programs for rainbow trout, pike and maskinonge. Staff of the walleye unit were moved to Port Arthur where lakes, suitable for the studies planned, are available.

Brook trout studies are making excellent progressions understanding the causes of costly, high planting mortalities, and promise early reward savings.

Studies of smallmouth bass demonstrated that hand soft detergents, which are now a part of the vironment for fish in Ontario, are equally detriment bass and to some minnows.

DISCIPLINES PROGRAMS

These include selected breeding research, limno (study of freshwater environment), parasitology productivity. The selective breeding program has cessfully developed the splake and is planning to a this new approach to other important species sufferom the effects of environmental change. New faci to accommodate this research, which has tremen potential, are planned.

Productivity studies have already provided a resystem of classifying Ontario's lakes in terms of capacity to produce pounds of fish. This has been many years, a yard-stick badly needed by fish management. Further research is refining the sys

The survey of fish parasites, occurring throug Ontario, is nearing completion. Some of the parafound are considered to be of significance in lim the abundance of certain important fish species.

The research program was co-ordinated with the other agencies by:—active participation in the mee of the Great Lakes Fishery Commission; actions us terms of agreements with the Federal Government with universities; and encouragement of participation our programs by interested individuals on stavarious universities.

DRESTRY SECTION

w knowledge, derived from studies of tree species, e associations and their management, is needed to intain and improve Ontario's forest production. This he objective of the Section.

Some of the work is of a co-operative nature with the agencies such as the universities, Ontario Rerch Foundation, Canada Department of Forestry, at the wood-using industries of the Province.

VICULTURAL RESEARCH

DRTHERN ONTARIO

1967-68, studies of the silvicultural characteristics of uce and balsam fir and their associated species attinued.

An important part of this year's program was a study the long-term effects of a variety of logging systems the species composition, population dynamics and development in the mixed-wood, spruce-fir cover be. Balsam fir continues to predominate in the areas at were logged, regardless of the harvesting system ed.

The white spruce content has been increased on cuter, mixed wood areas, where seed trees have been t and where the seedbed has been prepared mechanlly. Since balsam fir is equally, or more, able to seed e prepared seedbed, the ratio of balsam fir to white ruce is relatively unchanged over that which occurs the conventional cut-over areas.

Other areas of study in the Unit's program are reneration problems of lowland black spruce, hybrid plar trials, plantation spacing, planting of white ruce throughout the summer months, and a seedality study.

NTRAL ONTARIO

e research program consists mainly of field and labatory studies of nutrition and growth of spruce on a mplete range of forest sites, as well as species and cial variation in the spruce genus.

The Unit's work includes some limited studies of tree strition in relation to forest disturbances.

Research on smelter fume pollution, in relation to rest soils and vegetation, has been concluded for the esent, but information on this subject is being suped on request.

Special attention is being given to red spruce as it is species that will be useful in improving the producity of low-quality hardwood stands and, in several

ways, is more suited to many of the forest types and conditions in Site Region 5 than are other plantable species.

Although studies on spruce have been made on a number of different aspects, these may be most easily grouped as follows:—

Productivity and Ecology—involving a number of fundamental studies, including growth, nutrition, productivity, site, regeneration, etc.

Performance and Efficiency—comparison within and between species on the basis of growth and nutrition, and genetic and taxonomical relationships.

Practical applications for Management—establishment of seed production areas and underplanting studies.

To date, a wide variety of scientific data has been accumulated, and the actual field work is near completion. Emphasis is now being placed upon the laboratory analyses, and this phase of the work is well under way.

SOUTH-CENTRAL ONTARIO

In this Unit, emphasis has been on the improvement of the quality of sugar maple. Over the past several years, information on tree quality, age, stand structure, and many other factors has been gathered.

By felling, sectioning, splitting and aging sugar maple saplings, a fairly distinct quality differential was found to exist in relation to the rate of diameter growth. Rapid growth, in general, was related to higher quality. Indications are that faster growth tends to heal wounds more quickly, thus retarding deterioration by rots and stains.

The ecological factor most readily manipulated is competition. Hence, it was postulated that control of stocking, at appropriate times by improvement cuttings, might be sufficient treatment to produce good quality trees, even on granitic soils.

To develop guides for such cuttings, long-term studies are being made of the performance of various sizes and quality classes. To facilitate this work, a value-capability rating, which considers potential merchantable length, vigour, defects and risk factors, such as excessive lean and site limitations, was designed.

During 1967, additional experimental loggings have been completed and are being studied to assess the practical application of these guides in forest management.

SOUTHWESTERN ONTARIO

The physiographic conditions in this area present a



Cross pollination of pine at Southern Research Station, Maple, by Miss Marie Rauter, first woman graduate of Faculty of Forestry, University of Toronto.

unique opportunity for growing a wide variety of hardwood species supporting a diversified wood-using industry. To take advantage of this opportunity, there is an urgent need to improve management practices in the selection, establishment and culture of quality hardwood species.

Research projects deal with the main problems within this broad field and consist essentially of tree species research, forest management research and forest chemical research. The species under study include: silver maple, eastern cottonwood and willow on the lowlands; and hard maple, red oak, white ash, black cherry, basswood and aspen on the uplands.

In 1967, particular attention has been given to the selection, propagation and culture of high-quality phenotypes of silver maple, cottonwoods and willow, to replace the elm that is being devastated by the elm disease in the lowland areas. The work includes growth, thinning and planting studies, in addition to the vegetative production of phenotypes by budding, rooting of cuttings and layerings.

The syrup production of silver maple is being investigated to determine the feasibility of producing maple sap products from extensive silver maple stands.

Associated work on the establishment of red oak, basswood, hybrid poplar, large-toothed aspen, and white and red pine is continuing.

Research is also being conducted into the use of herbicides, silvicides and soil sterilants.

SOUTHEASTERN ONTARIO

The major projects in the research program of the Unit have continued to be prescribed burning in tolerant hardwoods and the silvics of basswood.

Annual tallies and observations in the four areas, where the effects of prescribed burning are being studied, indicate that fire can increase the regeneration of preferred species, such as yellow birch, when followed by cutting. Further burns will be required to establish a more detailed prescription for specific management objectives.

The value of the studies, included in the basswood project, assumes increasing importance in view of the attention being paid to the southern hardwood species in Ontario. Knowledge gained from the studies, on the successful germination of fruit and seed, natural regeneration after various cutting techniques, the planting of nursery stock, and the management of hardwood stands with a basswood admixture, should improve the potential use of this species, particularly when the

Woodland Improvement Act is fully implemented. Preliminary results show that basswood nursery stock can be successfully planted in cutover hardwood stands.

The use of peat wedges in planting shallow lands has proved successful in Europe. Six areas in southeastern Ontario were selected to study the feasibility of this technique in establishing tree cover on land unsuitable for agriculture. A provisional planting manual has been written. This will be revised periodically in the light of knowledge gained from several plantings over a period of years.

NURSERY AND PLANTATION RESEARCH

This program is directed towards the procurement of information through research for the scientific advancement of the reforestation program of the Department.

The creation of the Reforestation Unit in 1953 consolidated many prior planting studies and permitted commencement of new research efforts on aspects of nursery operations, planting, frost, drought, postplanting success, and fertilization.

Work was continued on the following projects during the years 1967-68 (the figures in brackets indicate the year of initiation:— Depths and methods of planting (1948); Seedlings versus transplants (1957); Root pruning of nursery stock (1957); Nutrient correlations (1964); Adjustment of soil acidity (1959); Planting on blueberry-sweetfern sites (1959); Frost studies (1959); Ecotypical variation in black spruce (1959); Planting

through the growing season (1951); Studies of planticheck (1960); Hormone studies (1961); Drought stud (1965); Root coating (1966); and Seedbed densit (1966).

FOREST TREE BREEDING RESEARCH

Tree breeding research has continued with pop spruce, and white pine.

The improvement of native poplar species and development of hybrid poplars, suitable for the future needs of poplar timber production under varying conditions in Ontario, are the aims of the poplar projections work has now reached the stage where the velopment of new clones, from existing hybrid populations can be attempted.

Attention is being paid to cottonwood breeding a the improvement of aspen for central and north Ontario conditions. The growing capacity of th poplar species, the possible industrial value of pop timber and the suitable ecological conditions for th growth anticipate the necessity of their improvem for future needs. The results obtained in poplar breed here, and elsewhere in the world, give hope for a retively rapid success.

Controlled pollinations with black spruce, where spruce and several exotic species have been continuing combinations which will induce hybrid vigor, desi ecological tolerance and other characteristics of sicultural value.

VEGETATIVE PROPAGATION OF WHITE PINE BY ROOTED CUTTINGS

Cuttings raised in tubes (a, b & c) have root system (c) preferred to that of cuttings raised in a normal manner (d).



ntensive acquisition of breeding materials, mainly tics, has been in progress throughout. Progeny testand variation studies are being initiated to facilitate selection and breeding work.

n eastern white pine, emphasis is being put on imvement of growth rate and form in addition to ter rust resistance. Development of hybrids with nalayan white pine, known for hybrid vigor and ter rust resistance, and western white pine, known shade tolerance, has been continued. The introction of practical means for vegetative propagation of best hybrids is being attempted. This may save my years' work and allow for a rapid solution to white e improvement.

OOD QUALITY RESEARCH

e purpose of the studies of wood quality is to define specific physical and chemical wood characteristics ch contribute to superior quality in end-use prods, and to relate these characteristics to heritable and ironmental factors. A Wood Quality Unit is establed in the Research Branch, and the Ontario Research andation receives an annual grant from the Detment for making pulping and other tests on wood aples provided them. To date, work has concentrated black spruce.

xtensive measurements of physical and chemical od characteristics were made by the Ontario Rerch Foundation in 1967, and are being analyzed to ermine those characteristics that best define pulp paper quality.

Complementary studies by the Research Branch assed wood specific gravity and the distribution and punt of compression wood in trees from several in northern Ontario.

E RESEARCH

t site research programs have stressed the broad tionships between physical characteristics of land the development of forests, both qualitatively and intitatively. This has resulted in the development of stem for delimiting land classes, which may then be luated for several alternatives or concomitant uses. It is year, land classification and evaluation passed a predominantly-research pursuit to a predominantly-inventory technique.

Research Branch staff, involved in the developmental grams, were transferred at the end of the year to newly-organized inventory section of Lands and veys Branch. Prior to this, they gave on-the-job trainto other personnel of Lands and Surveys Branch and

Fish and Wildlife Branch for rating wildlife and recreation capabilities.

Work on the Ontario Land Inventory provides Department resource managers with substantial detail of the physiography and capability of land units. This is integrated with the mapping program conducted for the Canada Land Inventory supported by ARDA funds. During the year, mapping, description and evaluation work was carried out in most of the Ontario regions.

Factorial site research, to provide quantitative information concerning the influence of specific site factors on forest growth, continued to stress nutrients and moisture. Current research is predominantly concerned with the rate of nutrient release from mineral materials, the forest floor as a nutrient source, soil genesis, the influence of moisture deficits on tree growth, and the augmenting of available soil moisture by shallow water tables.

MENSURATION AND STATISTICS

The Mensuration Unit is concerned in quantifying certain basic aspects of information which are necessary for the management of timber resources.

The research work includes the survey of forest stands, estimation of volume and yield tables, determination of rates of forest growth, and prediction of future wood production.

The establishment of permanent sample plots to furnish data on productivity of plantations was continued in 1967-68. The program was initiated 20 years ago by Reforestation Division. The work is now the responsibility of Research Branch, and many additional study areas have been established and remeasured and thinned since that time. Some phases of this work include studies of the effects of fertilization on height, diameter and volume growth.

In growth and yield studies of hardwoods, yields of relatively even-aged sapling and polewood stands were measured in six different woodlots. The principal species under consideration are hard maple, beech and red oak. The growth patterns observed will provide a basis for tentative growth projections, and comparisons will be made with older, undisturbed stands growing on the same sites and showing similar early development.

In 1967, statistical and advisory services were rendered to research foresters.

BIOMATHEMATICAL STATISTICS

The system designed and developed here, to determine net merchantable volume in tree length logging operations from a small sample in each operation, was turned over to Timber Sales together with computer programs for performing the calculations.

During 1967, emphasis was placed on adapting modern mathematical theory to create an integrated group of valid and efficient data-transformation and data-analysis procedures. Also, services were provided to the several sections of Research Branch and to other Branches and agencies, in the form of sampling and experimental designs for the collection of data, computer programs for data analysis, plus assistance in the interpretation of results.

FORESTRY ECONOMICS

The Forestry Section economist participated in a feasibility study which was related to a possible establishment of pulp and paper manufacture in northwestern Ontario.

In addition, he prepared and delivered a paper at the 1968 general meeting held by the Woodlands Section of the Canadian Pulp and Paper Association in Montreal. Also, he was consulted by universities, industrial associations and the Deputy Minister of the Department of Lands and Forests on various aspects of forestry and the forest-based industries of the USSR. Advice and assistance were also provided to certain members of the Branch on problems pertaining to forestry economics arising in their work.

TREE NUTRITION RESEARCH

The purpose of the Unit is to diagnose the nutrient requirements of timber stands by correlating the specific growth of trees with the nutrient concentrations of the upper crown foliage.

In Simcoe County, three projects were studied. In the first, 32-year-old jack pine, fertilized in 1961 with urea, increased 37 per cent more in volume and produced 50 per cent more cones than unfertilized jack pine. In the second project, 36-year-old red pine, fertilized in 1959 with NPK and urea, was thinned to compare the effects of thinning and fertilization upon growth. In the third project, 37-year-old red pine, fertilized in 1965 with NPK and urea, increased in diameter growth 25 per cent more than unfertilized trees. A good correlation was obtained between foliar nutrient concentration and the specific growth of both the red and jack pine.

In the Algoma District, two projects were studied. In the first, 39-year-old red pine, fertilized in 1958 with NPK and lime, increased in growth 24 per cent more than unfertilized red pine. In the second project, it was determined that the high soil manganese was mainly

responsible for the predominance of white spruce reproduction on a sand plain.

In the Algonquin District, two projects were studied. In the first, 17-year-old red pine, fertilized with NKMg in 1961, increased 25 per cent more than unfertilized red pine in height growth after six years. In the second project, potted nursery stock, planted in a frost pocket in 1961, did not respond to various fertilizers applied at the time of planting, but showed increased height growth over controls when the competition of sweet fern was removed.

THE STO BUSINESS.

In the current year, 1967, when the Unit was established, the most urgent problem was to find a technique for selecting tree seed of uniform, high germinative capacity and high germinative energy.

The work done to date has indicated that density and size sorting results in elimination of a high proportion of dirt, empty and broken seed plus seed of low germinative energy. Rate of germination and total germination varied with both size and density, as did rate of initial growth.

Future studies of a comprehensive nature will be made in co-operation with the Faculty of Forestry, University of Toronto, to study seed characteristics, means of measuring germinative capacity, treatments prior to germination, and seed source.

TORREST LEOLOGY

The research work described here is centred at Southern Research Station at Maple but is an integral part of the research programs of the South Central and Southwestern Silvicultural Units.

An experiment was established 14 years ago to evaluate the effects of delayed release, cover density and site on the survival and growth of three underplanted coniferous species. The 1967 remeasurement and analysis indicate a strong interaction between site and the timing of release, and the effects on survival and growth of planted stock.

In work related to the Southwestern Unit, it was noted that the discoloration in the wood of standing silver maple trees appears to be a protection wood phenomenon, based on cultural and histochemical observations. No basis has yet been found to indicate the reason for its restricted geographic occurrence. Future work on this problem will be carried out in connection with similar studies on sugar maple protection wood.

Provisional models were developed, for second-growth sugar maple growing under different ecological

conditions, which related current annual basal area growth of individual trees to crown volume, crown position and angle count (a measure of local competition). Model differences between some study areas appear related to parent stand structure.

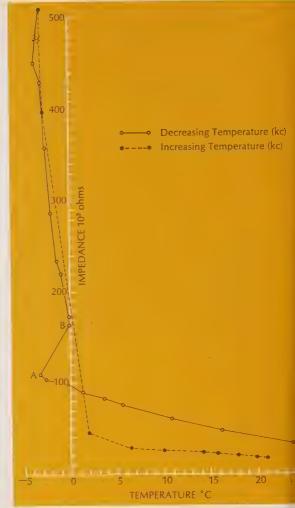
DEVELOPMENT SESEMBLY

In 1964, when the Unit was established, its main problem was designing and field-testing prototype equipment for the tubed seedling program. When the equipment was ready for practical field use, a manual was prepared describing the steps for the mass production of tubed seedlings in the field.

In 1967, following extensive frost heaving of tubes, equipment was designed to simulate frost-heave, so that this phenomenon could be studied under controlled conditions. Studies established that heaving could be prevented by coating the tube's outer surface with a greasy substance, but this treatment was effective only if the frost did not penetrate below the depth of the planted tube.

Other contributions to the tubed seedling program include improvement in tube handling in the automatic loader, redesigned plastic roof-covering for the greenhouses, and changes in ventilation and shading for the field greenhouses.





EFFECT OF FROST ON RED PINE

The effects of frost on the physiological condition trees can be determined with electrical resistance.

Good survival and growth of conifers planted un forest cover depends upon early release from c petition.

VILDLIFE SECTION

e program of research, on furbearers, big game, edators, upland game and waterfowl, was directed ward an understanding of their attributes and the eans by which their management could be improved. Research was conducted throughout most of Ontario locations or under circumstances that provided the st possible opportunities for obtaining comprehene information about the species and its relationship its environment. Subsequent pilot application, and ting of research findings under management condins, were also a responsibility of the program.

The Wildlife Research Station in Algonquin Park proled facilities and services for Department personnel d for various universities and other agencies engaged animal research of interest to the Department.

RBEARERS

search on otter and beaver continued to receive ghest priority among the furbearers because of their conomic value and to complete several years of prior dies. Plans to initiate a comprehensive program to termine the causes of population fluctuation in mink, sich are also high revenue producers for Ontario ppers, were delayed pending completion of otter tearch.

Field research on otter was completed, and the poratory work necessary to interpret field data was dertaken. A method for determining ages by tooth ctions was developed, and the ages of 430 otter were tablished. In the sample, young animals predomited in trappers' catches; approximately 42 per cent ere under 12 months of age and 82 per cent were no der than five years. Less than one per cent had reached years of age.

Research on beaver populations, in Algonquin Park, chipicoten Island and the Patricia Districts, showed nsiderable variation in densities, partly because of fering levels of trapping pressure.

Protected populations in Algonquin Park have graduy declined over the past 13 years. In 1967, there were 2 colonies per square mile as compared to 2.04 lonies per square mile during the highest year.

On Michipicoten Island, colonies were reduced by dian trappers from approximately 700 in 1960, a nsity which was considered to be excessive, to 72 in 55. In the last two years, protection has allowed this pulation to increase to 126 colonies.

'n the Patricia Districts, high populations, which were ihtly harvested, remained relatively stable for the

past three years. However, there are now more frequent reports of natural mortality than occurred when beaver were trapped more heavily.

UPLAND GAME AND WATERFOWL

Research on upland game, principally ruffed and prairie grouse, and geese, is supporting management programs on these species which provide hunting opportunities for many sportsmen in Ontario and are important food sources for residents in the north.

Studies of the nutritional requirements of ruffed grouse, conducted in co-operation with the University of Guelph, are attempting to determine the nutritional levels at which ruffed grouse are now living in the Province. Feeding trials were conducted on grouse raised for the purpose. Samples of foods eaten by wild grouse were checked for nutritional value, and experiments were carried out on the suitability of three different rations for raising grouse. The growth of grouse chicks on various diets was also studied.

Studies of the taxonomy and distribution of all members of the grouse family were continued in an effort to establish their characteristics.

Research on the production of Canada and snow geese, in northern Ontario and adjacent parts of the Hudson Bay coast, were continued. Aerial survey techniques are now producing reliable and usable population data for snow geese. Similar surveys for Canada geese are not yet perfected.

An intensive nesting study of Canada geese, in the lowlands northwest of Moosonee, was initiated in cooperation with other member States and Provinces of the Mississippi Flyway Council. The objective of this research was to define the factors which are responsible for the variations in brood production and survival which have been observed during aerial surveys in the past few years and are apparent in the numbers of birds which migrate south each autumn. This year, it appeared that an extremely late spring break-up resulted in small clutches of eggs, few broods and a generally late hatch. Flooding was not found to be a factor in reducing production.

BIG GAME

Long-term studies of the population ecology of deer have been maintained in Tweed and Parry Sound Forest Districts to provide data on basic productivity of representative range types and on the effects of hunting pressure. The steady accumulation of census and harvest statistics has permitted increasingly accurate and reliable estimates of mortality rates, including hunting mortality. Studies of the response of deer to experimental management of mixed conifer swamps in northern Frontenac County and on browse development and tree regeneration in the treated areas have been conducted since 1957. With recent herd levels of 10 to 15 deer per square mile, patch cuts have so far proven to be most successful. They have provided attractive shelter and greatly improved supplies of palatable food, and at the same time have promoted satisfactory regeneration of commercially valuable tree species.

Data from the province-wide network of snow stations indicated that snow conditions during the 1966-77 winter should not have restricted normal survival of deer throughout the Ontario range. Results of the 1967 open season show an improvement over 1966 in kill per unit of effort west of Lake Superior, and herd levels over the eastern range almost unchanged.

PREDATORS

The development of predator control techniques has been an integral part of the predator program for several years. In the current year, organization and methods reached an operational stage so this part of the program was transferred to Fish and Wildlife Branch.

Timber wolf research was continued in northern Parry Sound District where the interactions between wolves and their prey are influenced by trapping and hunting pressures. Essentially, this is an application of the results obtained from the Algonquin Park research to an area where management situations are representative of much of the Province.

Results of the Parry Sound study showed that wolves and their chief prey, beaver and deer, have maintained

a stability in numbers over a four-year period. Beavers form the bulk of the food of timber wolves during the ice-free period of the year, while deer provide almost their total intake during the remaining months. Within the eastern Ontario deer range as a whole, excluding Algonquin Park, approximately 40 per cent of the deer taken by wolves were 5.5 years of age or older — a segment of the population that constitutes only about 10 per cent of the total normally killed by hunters.

Research was continued on aging techniques, analysis of bounty data, population estimates, movements and range and other aspects of wolf ecology to support the Parry Sound field study.

Preliminary studies of population and distributions of black and polar bears were continued. Aerial surveys indicated that there were at least 168 polar bears along the Hudson Bay coast of Ontario in late August. This was about three times as great a number as had been found in any previous survey. Changes in the numbers and distributions of polar bears from year to year may be related to the distribution of pack ice during break-up in mid-summer.

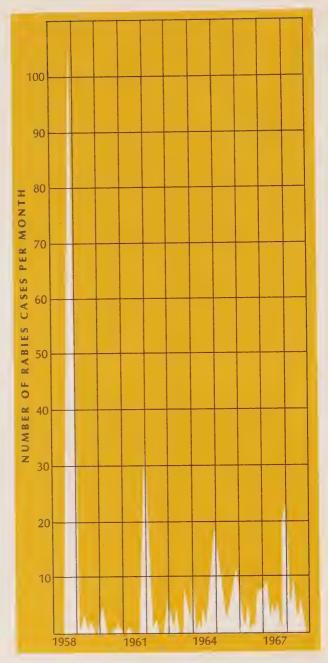
ASSOCIATE DURANGE AND PARASOTTS.

The surveillance of the occurrences of diseases and parasites of wildlife was continued. The geographic distributions of several diseases and parasites and the species of animals affected by them are now known.

Detailed research on the occurrence of kidney worms and lungworms in mink showed high incidence in samples received from the main study area in Parry Sound Forest District. Kidney worms infected 38 per cent of 139 mink while 43 per cent of 106 mink were infected by lungworms. Studies are being conducted to assess the possible effects of kidney worms on reproduction and pelt quality.

Research on rabies continued to make use of data supplied by the Canada Department of Agriculture on the reported occurrences of rabid wildlife and domestic animals throughout the Province. Analysis of these data has shown that peaks in rabies occurrences may occur at three-year intervals in areas of optimum fox habitat and at four-year intervals where habitat is poorer. The regularity of these fluctuations in several parts of southern Ontario indicates that we may be able to predict problem years for this disease for particular areas.

Studies have indicated that epizootics of rabies are usually related to high densities of foxes and skunks. An effort was made to reduce the numbers of foxes in Carleton County by distributing baits containing a reproductive inhibiter, diethylstilbestrol. The results of this treatment are being analyzed.



THE INCIDENCE OF ANIMAL RABIES IN GREY COUNTY

The graph shows major winter peaks in a 3-year cycle which is common to many areas of similar habitat in southern Ontario.

MECHANICAL SECTION

The main work of the Section during the year was, as the past, concerned with the development of speciequipment and instruments required for Resear Branch in fisheries, forestry and wildlife. Special equiment was also designed for other Branches of the Department. In addition, the Section provided engineding services to the Department.

REPORTS

Research Branch reports published during the year ening March 31, 1968.

FISHERIES

Berst, A. H. A water sampler for field biology. Pro Fish-Culturist, Vol. 29, No. 3, July 1967.

Bert, A. H. and A. A. Wainio. Lamprey parasitism rainbow trout in Southern Georgian Boy. J. Fish. R Bd. Canada 24 (12), 1967.

Bidgood, B. F. and A. H. Berst. Phenotypic characte tics of rainbow trout in the Great Lakes. J. Fish. R Bd. Canada 24 (4), 1967.

Coble, Daniel W. The White sucker population South Bay, Lake Huron and effects of the sea lamp on it. J. Fish. Res. Bd. Canada 24 (10), 1967.

Dechtiar, Alex. A new species of monogenetic trer tode, Octomacrum semotili, from the creek ch Semotilus atromaculatus (Mitchell) from Algonq Park lakes. Can. J. of Zool. Vol. 44 (1967).

Dechtiar, Alex. Neodiscocotyle carpioditis n. gen., sp. monogenetic trematoda (Discotylidae: Nediscocotylinae sub fam. N) from the gills of the queback, Carpiodes cyprinus (LaSueuer) of Lake Electric Can. J. of Zool. Vol. 45 (1967).

Dechtiar, A. Neoechinorhynchus carpiodi n. sp. (Ac thocephala: Neoechinorhynchoides) from quillba Lake Erie. J. of Zool. Vol. 46, no. 2, March 1968.

Faber, Daniel J. A net for catching limnetic fry. Tr. Am Fish. Soc. Vol. 97, No. 1, 22 Jan. 1968, pp. 61

Fraser, J. M. Differential recovery of brook t planted by hand and by air drop. Trans. Am. Fish. Vol. 97, No. 1, 22 Jan. 1968.

MacLeod, J. C. A new apparatus for measuring measuring measuring speeds of small fish. J. Fish. Res Canada, 24 (6), 1967.

McCombie, A. M. A recent study of the phytoploton in the Bay of Quinte 1963-64. Proc. 10th Congreat Lakes Research, 1967.

Combie, A. M. Some physical and chemical charcteristics of the Bay of Quinte. Research Report 10.79.

pson, R. B. and D. V. Anderson. The Surface Tides of Lake Ontario. Research Report No. 76.

derson, D. V. Diurnal Motions of the Thermocline of Lake Ontario caused by Meteorological and Tidal orces. Research Report No. 77.

derson, D. V. and F. E. J. Fry. The Thermal Regime of Georgian Bay. Research Report No. 80.

RESTRY

ssonneau, A. N. Glacial history of Northeastern Ontario. Can. Journal of Earth Sciences, Vol. 3.

ger, D. Distribution and origin of parent soil maerials in part of the Ottawa and Bonnechere River alleys, Ontario. Can. Journal of Earth Sciences, Vol., 1967.

michael, A. J., J. J. Ladell and G. H. S. Thomas. Curent work in Ontario on compression wood in black pruce in relation to pulp yield and quality. Proceedings of the Eighth Lake States Forest Tree Improvement Conference, Sept. 12-13, 1967.

michael, A. J. Shallow sand cover gives best germnation of black spruce seeds. Tree Planters' Notes, Vol. 19, No. 1, March 1968.

rum, C. and G. Pierpoint. The influence of soil noisture deficits on the growth of seedlings of three oniferous species. Proc. 5th Conf. Art. Regen.

rum, C. The relationship between frost hardiness nd electrical impedance in two coniferous species. UFRO Congress, Section 22, Munich, September 7, 967.

llin, R. E. Root Exposure of white spruce nursery tock. For. Chronicle 43 (2): 155-160.

llin, R. E. Effects of competition on post-planting growth of white spruce. Address for Soil Science Soc. Am. Annual meeting, Washington, Nov. 5-11. Agrotomy Abstracts 1967:;37.

llin, R. E. Spring planting with jack pine transplants ecommended for Blueberry-Sweetfern sites in northern Ontario, For, Chronicle 44 (4) 19-23.

rpoint, G. Direct measurement of internal moisture leficits in trees. For. Chronicle Vol. 43 (2): 145-148, une 1967.

tai, S. C. Glacial features of the north-central Lake uperior Region, Ontario. Can. Journal of Earth ciences, Vol. 4 (1967).



WILDLIFE

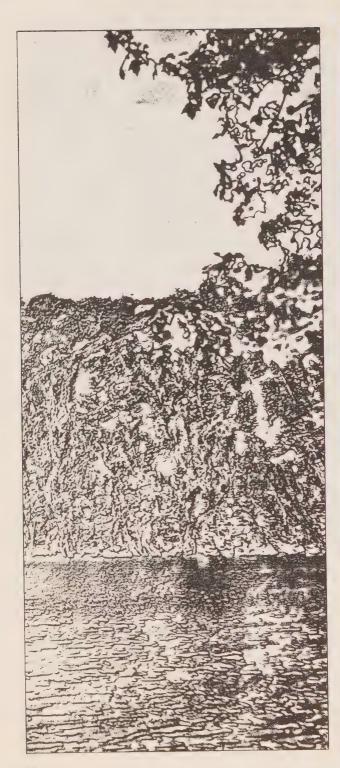
Ahti, T. and R. L. Hepburn. Preliminary studies on woodland caribou range, especially in lichen stands, in Ontario. Research Report No. 74.

Fyvie, A. Disease and parasitism in wildlife in Ontario as reported on Form Res. 49 in 1966 and 1967. Resource Management Report No. 93, pp 1-12, March 1968.

Kolenosky, G. B. and D. H. Johnston. Radio tracking timber wolves in Ontario. American Zoologist 7:289-305, 1967.

Kolenosky, G. B. Radio Tracking Timber Wolves. Research Report (Wildlife) No. 78.

Some 690 snow and blue geese and their young in this flock, a part of the colony which nests on Hudson Bay west of Cape Henrietta Maria.





ACCOUNTS BRANCH

OBJECTIVES

- 1. To provide a complete financial management service to the Department.
- 2. To maintain a system of property taxation in unorganized areas of the Province.
- 3. To perform administrative services assigned.

ORGANIZATION

Accounts Branch is divided into units with duties and responsibilities as follows.

Accounting: Supervision of accounting for entire Department; preparation of claims under Federal-Provincial agreements; compilation of costing reports; procedural control and safe keeping of assets; and financial liaison with Treasury Board, Provincial Auditor, and other Government Departments and agencies.

Revenue: Collection of revenue; maintenance of accounts receivable; supervision of accountable warrant funds; control of collateral securities; and issue of angling and hunting licences and park permits.

Expenditure: Preparation of payrolls; internal check and payment of accounts payable; processing of refunds; and preparation of data for Public Accounts.

Budget Preparation and Control: Compilation of estimates and forecasts; and expenditure reporting and control.

Finance and Cost Analyses: Financial evaluation of plans; and preparation of statistical and financial reports.

Accounting Systems and Procedures: Development of accounting systems; preparation of accounting procedural manuals; and development of costing systems.

Land Tax Administration: Administration of Provincial Land Tax Act; and assessments and appeals. Internal Audit: Review and appraisal of accounting, financial and operational controls.

Systems and Procedures: Provision of systems improvement program for entire Department.

General: Data processing; and addressograph and

mail services.

OMPARISON OF RECEIPTS AND DISBURSEMENTS WITH THOSE OF THE REVIOUS TWO YEARS

Receipts (Branch)	1966 \$	1967 \$	1968 \$
Provincial Land Tax	1,528,775.	1,772,838.	1,761,796.
Fish and Wildlife	6,153,301.	6,741,700.	6,891,016.
Forest Protection	98,671.	113,545.	163,205.
Lands and Surveys	1,050,480.	1,470,184.	1,519,099.
Parks	1,884,935.	2,103,496.	2,432,009.
Timber	15,363,949.	14,980,397.	17,057,603.
Other	256,243.	235,634.	155,616.
Total Receipts	26,336,354.	27,417,794.	29, <mark>980,</mark> 344.
) Disbursements	1966 \$	1967 \$	1968 \$
Chargeable to Ordinary Account	28,528,699. 3,893,760.	36,307,310. 5,905,588.	42,807,111. 8,006,755.
Total Disbursements	32,422,459.	42,212,898.	50,813,866.

RECEIPTS

MAIN OFFICE Provincial Land Tax	1,761,795.85 136.921.50	\$ 1.898.717.
Sale of Maps, Publications, etc		* '//
FISH AND WILDLIFE BRANCH		
Licences, Royalties and Sundry (see Statement No. 3)		6,891,015.
FOREST PROTECTION BRANCH		
Forest Protection Section		
Recovery of Fire Fighting Costs and Miscellaneous	124,489.26	
Air Service Section Flying Fees	38,715.36	163,204.
LANDS AND SURVEYS BRANCH		
Lands Section		
Land Sales (Capital)	778,884.39	
Land Rentals, Leases and Licences of Occupation	399,445.19	
Perguisites—Rentals	181,791.64	
Miscellaneous	14,891.57	
Park Rentals, Leases and Licences of Occupation		
Algonquin		
Rondeau		
riesquite		
Long Point 652.85 Sundry Parks 1,733.35	30,986.75	
Sundry Larks	30,300.73	
Surveys Section Recovery of Survey Fees	113,100.00	1,519,099
PARKS BRANCH		
Parks Concessions	107,535.76	
Rentals	107,333.70	
Permits (All Parks) 1,028,405.00		
Campsite		
Boat	2,042,908.75	
Licences		
Guide	4,725.00	
Miscellaneous	37,429.97	0.400.000
Government of Canada (Capital) Federal-Provincial Rural Development Agreement (Recovery of Prior Years' Disbursements)	239,409.65	2,432,009

DISBURSEMENTS

IN OFFICE:			
Minister's Salary—Statutory		12,000.00	
alaries			
ravelling Expenses	52,677.45		
Maintenance and Operating	312,996.94	2,007,208.99	
Public Information and Education		238,996.68	
Damages, Other Claims, etc		9,112.50	
Vorkmen's Compensation Board		203,330.37	
Annuities and Bonuses to Indians		38,496.00	
Jnemployment Insurance		96,509.15	
Advisory Committee to Minister		1,306.04	
Grant to Ontario Forestry Association		12,500.00	
Grant to Canadian Council of Resource Ministers		25,116.00	
Data Processing Services		6,080.55	\$ 2,650,656.28
H AND WILDLIFE BRANCH			
alaries	461,725.98		
ravelling Expenses	37,055.16		
Naintenance and Operating	142,993.87	641,775.01	
Grants	- 112/333137	011,770.07	
Jack Miner Migratory Bird Foundation, Inc.	7,561.27		
Waterfowl Research Foundation	10,000.00		
Ontario Fur Breeders' Association, Inc.	5,000.00		
Ontario Council of Commercial Fisheries	5,000.00		
Ontario Trappers' Association	5.000.00	32,561.27	
		61.996.00	736,332,28
Wolf Bounty		01,990.00	730,332.20
REST PROTECTION BRANCH			
alaries		241,071.10	
ravelling Expenses		13,114.63	
Maintenance and Operating		19,996.10	274,181.83
NDS AND SURVEYS BRANCH			
alaries	632,160.19		
ravelling Expenses	15,021.48		
Maintenance and Operating		675,412.26	
and Surveys		659,998.51	
torage Dams—Control and Maintenance		1,946.53	
Grants		1,770.55	
Association of Ontario Land Surveyors	200.00		
Township of Matchedash		4,200.00	1,341,557.30
		.,200.00	7,0 11,001,100

RECEIPTS

	Brought forward	\$12,904,046
TIMBER BRANCH		
Timber Section (see Statement No. 2) Timber Dues, Bonus, etc. Logging Roads—Recovery Construction Costs (Capital)	16,714,810.77 207,006.18	
Reforestation Section		
Sale Nursery Stock		17,057,603
FOREST TECHNICAL SCHOOL		18.694
Tuition Fees		10,05
GOVERNMENT OF CANADA		
Ordinary Federal-Provincial Resources, Development Agreement (see Contra) Federal-Provincial Rural, Development Agreement (see Contra) Federal-Provincial Fisheries, Industrial Development Agreement (see Contra)	119,203.00	
Capital Federal-Provincial Rural, Development Agreement (see Contra)	117,810.56	366,424
GROSS RECEIPTS		30,346,768
Deduct—Reimbursements of Expenditures		366,424
NET RECEIPTS		29,980,344 20,833,523
Excess of Disbursements over Receipts		20,033,321

DISBURSEMENTS

talalic in the second of the s	E	Brought forward	\$5,002,727.69
Galaries Travelling Expenses		16 077 20	
Maintenance and Operating		8,998.71	240,620.66
SEARCH BRANCH alaries ravelling Expenses Maintenance and Operating		40 413 72	1,027.627.76
MBER BRANCH		100,37 3.04	1,027,027,70
alaries ravelling Expenses Maintenance and Operating	850,593.93 52,359.46 210,052.47		
Grants—Municipalities and Conservation Authorities (see Statement No. 5)		75,049.60	1,188,055.46
ORGANIZATION—FIELD SERVICES			1,100,033.10
ravelling Expenses laintenance and Operating quipment—Other than Forest Fire Suppression laintenance of Forest Access Roads	21,123,337.43 817,088.18 6,939,573.48 2,880,785.47 696,296.15	32,457,080.71	
ess—Federal Contributions— Resources Development Agreement Rural Development Agreement Fisheries Industrial Development Agreement	98,830.47 119,283.66 30,500.00	248,614.13	32,208,466.58
RA FIRE FIGHTING /ages, etc., Maintenance and Operating	• • • • • • • • • • • • • • • • • • • •	1,424,811.04	1,796 022 37
REST TECHNICAL SCHOOL	-	37 1,2 11.33	1,, 70, (/2.2.)
alaries	• • • • • • • • • • • • • • • • • • • •	257,935.83 16,822.72	274,758.55
IIOR RANGER PROGRAM /ages, Travelling Expenses, Maintenance and Operating			1,068,832.19
MMER RESORT ACCESS ROADS (CAPITAL) onstruction Costs			148,994.72
GGING ROADS (CAPITAL) onstruction Costs see Receipts)			271,215,09
REST ACCESS ROADS (CAPITAL)			
D ACQUISITION AND DEVELOPMENT (CAPITAL)			1,072,917.30
erks, Recreation Areas, Public Hunting and Fishing Areas, Construction of Buildings and Other Improvementsess—Federal Contributions—Rural Development Agreement	• • • • • • • • • • • • • • • • • • • •	6,631,438.39 117,810.56	6,513,627.83

ANALYSIS OF CASH RECEIPTS BY DISTRICTS FOR YEAR ENDED MARCH 31st, 1968

Districts	Crown Dues	Ground Rent	Fire Protection Charges	Interest and Scalers Wages, Mill Licences, Scalers Licences	Agreement Forests	Total Timber Revenue	Cash Deposits Received and Refunded	Total Timber Revenue and Cash Deposits	Percentag of Tota Timber Revenue Cash Depo
Chapleau	\$ 673,897.04	\$ 1,678.00	\$ 21,700.50	\$ 578.66		\$ 697,854.20	\$ 522.56 Cr.	\$ 697,331.64	4.17
Cochrane	1,238,611.86	8,102.00	103,719.40	2,515.41		1,352,948.67	11,769.41 Cr.	1,341,179.26	8.02
Fort Frances	548,547.05	1,076.00	14,526.44	1,695.08		565,844.57		565,844.57	3.38
Geraldton	2,025,690.78	31,624.00	404,787.20	4,841.09		2,466,943.07	10,000.00 Cr.	2,456,943.07	14.70
Gogama	258,431.46	1,246.00	15,948.80	55.14		275,681.40		275,681.40	1.65
Kapuskasing	1,740,243.44	17,895.00	229,056.00	259.16		1,987,453.60	3,500.00	1,990,953.60	11.9
Kenora	1,171,881.75	10,615.00	135,747.80	342.30		1,318,586.85	7,500.00 Cr.	1,311,086.85	7.84
Lindsay	42,422.80	132.00	1,689.60	270.81	\$ 9,669.80	54,185.01	700.00 Cr.	53,485.01	.3
North Bay	787,169.88	2,922.00	37,393.26	2,744.39		830,229.53	9,500.00	839,729.53	5.0
Parry Sound	320,947.66	1,442.00	19,175.00	680.52		342,245.18	9,595.34	351,840.52	2.10
Pembroke	688,679.65	4,965.00	63,114.60	1,516 .59	830.68	759,106.52	1,744.50	760,851.02	4.5.
Port Arthur	2,017,997.37	15,883.00	203,302.40	1,396.76		2,238,579.53	4,650.00 Cr.	2,233,929.53	13.3
Sault Ste. Marie	779,657.12	8,697.00	112,343.18	1,166.66		901,863.96	9,550.00 Cr.	892,313.96	5.3
Sioux Lookout	1,244,964.92	1,327.00	17,966.81	356.69		1,264,615.42		1,264,615.42	7.5
Sudbury	391,049.62	4,689.00	61,137.20	1,913.41		458,789.23	7,900.00 Cr.	450,889.23	2.7
Swastika	458,274.69	1,950.00	26,588.00	1,099.12		487,911.81	1,300.00	489,211.81	2.9
Tweed	220,825.70	604.00	7,731.20	547.14	2,767.91	232,475.95	3,621.80	236,097.75	1.4
White River	357,038.28	3,257.00	43,224.80	111.80		403,631.88		403,631.88	2.4
Other Districts	39,855.89	1.00	12.80	4,511.30	54,213.73	98,594.72	600.00	99,194.72	.6
	\$15,006,186.96	\$ 118,105.00	\$ 1,519,164.99	\$ 26,602.03	\$ 67,482.12	\$16,737,541.10	\$22,730.33 Cr.	\$16,714,810.77	100.0
Percentage	89.65	.71	9.08	.16	.40	100.00%			

SH AND WILDLIFE REVENUE
NALYSIS OF CASH RECEIPTS FOR YEAR ENDED MARCH 31st, 1968

HERIES, LICENCES		
Angling	\$ 3,000,995.54	
Commercial Fishing	112,700.00	
Smelt Domestic	28,121.80	
Domestic Sale of Certain Fish	2,035.00	
Sale of Certain Fish	820.00	
ROYALTY	3,144,672.34	
Commercial Fishing	1,936.27	\$ 3,146,608.6
ILDLIFE, LICENCES		
Non-Resident Hunting Bear	1,896,323.27	
Bear Deer	4,821.00	
Deer	552,135.98	
Moose	464,418.25	
Ground Hog	39,775.56	
Gun	335,350.08	
Dog	25,292.30	
Trappers	30,433.00	
Fur Farmers Pheasant	2,745.70	
Pheasant	4,520.15	
Pheasant	5,063.50	
Provincial Parks Hunting	285.25	
	31,319.60	
	3,392,483.64	
COYALTY		
Game	218,622.35	3,611,105.99
NERAL, LICENCES, PERMITS AND OTHER REVENUE		
Guides		
Guides	1,234.00	
	34.00	
Config	1,580.00	
	81,419.53	
Commedica Anales	30,599.25	
Tanning Hogianinie	11,649.00	
- Vertical of Canada - Resolutes Development Agreement	1,163.15	
Miscellaneous	5,622.05	133,300.98
		\$ 6,891,015.58

		· · · · · · · · · · · · · · · · ·		
As Per Vote	Fish & Wildlife \$	Forest Protection \$	Lands \$	
ORDINARY EXPENDITURE				
Main Office	494,345.56 736,332.28	447,448.45	137,548.74	566,9
Forest Protection Branch Lands and Surveys Branch		274,181.83	233,842.79	
Parks Branch Timber Branch Research Branch				240,6
Forest Technical School	73,085.77	21.953.22		
Junior Ranger Program	8,579.87	202,200.85	30,589.97	475,8
Basic Organization Extra Fire Fighting (Wages and Equipment)	4,881,679.64	8,372,454.53 1,796,022.37	1,118,482.82	3,687,2
	6,194,023.12	11,114,261.25	1,520,464.32	4,970,7
DISTRIBUTION OF GENERAL EXPENDITURE AND ADMINISTRATION (ERVICES		
Field Administration (Pro-Rated)	463,955.05 13.62%	660,846.40	130,125.42	801,8
Research (As per Analysis)	1,016,768.67	19.40% 54,222.86	3.82% 158,266.89	23.54
Surveys (Pro-Rated)	13,188.79	54,222.00	1,279,312.68	7,9 13,1
— Percentage	1º/o		97%	13,1
TOTAL ORDINARY EXPENDITURE	7,687,935.63	11,829,330.51	3,088,169.31	5,793,7
CAPITAL DISBURSEMENTS				
Construction of Access Roads—Summer Resort Construction of Logging Roads (See Receipts) Construction of Forest Access Roads			148,994.72	
Land Acquisition and Development	344,659.58	12,357.74	498,458.82	5,694,3
TOTAL CAPITAL DISBURSEMENTS	344,659.58	12,357.74	647,453.54	5,694,3
TOTAL EXPENDITURE	8,032,595.21	11,841,688.25	3,735,622.85	11,488,0
Less—Federal Contributions	283,182.15		426,399.08	133,6
NET EXPENDITURE	7,749,413.06	11,841,688.25	3,309,223.77	11,354,4
Percentage of Total	15.25%	23.30%	6.51°/ ₀	22.35
*Deductions				

Timber \$	Research \$	Surveys \$	Field Admin- istration \$	Gross Total \$	Less— Federal Contributions \$	Net Total \$
768,123.69	93,555.46	64,576.08	78,117.40	2,650,656.28 736,332.28 274,181.83		2,650,656.28 736,332.28 274,181.83
1,196,061.60	1,027,627.76	1,107,714.51		1,341,557.30 240,620.66 1,196,061.60	<u> </u>	1,341,557.30 240,620.66 1,188,055.46
145,731.93 338,722.27	1,027,027.70	33,987.63	12,876.86	1,027,627.76 274,758.55 1,068,832.19	<u>-</u>	1,027,627.76 274,758.55
10,837,737.47	841,000.47	16,199.01	3,315,430.46	33,070,278.90 1,796,022.37	861,812.32 —	1,068,832.19 32,208,466.58 1,796,022.37
13,286,376.96	1,962,183.69	1,222,477.23	3,406,424.72	43,676,929.72	869,818.46	42,807,111.26
1,113,560.24 32.69% 864,665.15 13,188.79 1%	139,663.41 4.10% *2,101,847.10	96,401.82 2.83% *1,318,879.05	*3,406,424.72			
15,277,791.14	-	_		43,676,929.72	869,818.46	42,807,111.26
271,215.09 1,072,917.30 366,943.31				148,994.72 271,215.09 1,072,917.30 6,916,806.94		148,994.72 271,215.09 1,072,917.30 6,513,627.83
1,711,075.70				8,409,934.05	403,179.11	8,006,754.94
16,988,866.84 429,794.34				52,086,863.77	 1,272,997.57	
16,559,072.50						50,813,866.20
32.59%						

41,72

\$ 75,04

UNDER THE FORESTRY ACT R.S.O. 1960 (to aid in Acquisition of Forest Areas) FOR YEAR ENDED MARCH 31st, 1968

MUNICIPALITIES		
COUNTIES		
Dufferin	\$ 3,884.83	
Leeds and Grenville	4,286.25	
Ontario	11,044,87	
Prescott and Russell	14,880.77	
Renfrew	26,246.35	
Simcoe	11,675,54	
Wentworth	3.301.72	
York	7,940.74	\$ 83,26
CONSERVATION AUTHORITIES		
Big Creek	\$ 10,317.67	
Grand River	2,043.50	
Moira River	2,043.30	
North Grey	3,125.35	
Otonabee Region	1,930.95 580.50	
Sauble Valley	2,402.91	
Saugeen Valley	0.144.72	
South Nation River	9,144.72	
Upper Thames	2,676.37	22 5
	1,288.40	33,5
		\$116.77
Jess-Federal Contribution - Rural Davolanment Agraement		\$110,77





TIMBER BRANCH

OBJECTIVES

- 1. To provide maximum sustained yields from the Crown forests.
- 2. To encourage the expansion of forest industry to fully utilize the productive capacity of the forest.
- 3. To encourage sound forest management on privately owned woodlands.

ORGANIZATION

Timber Branch is divided into three Sections and their subordinate units with duties and responsibilities as follows.

REFORESTATION

Tree Production and Distribution: Producing and distributing planting stocks; and securing and distributing quality tree seed.

Agreement Forests: Administering forestry agreements with municipal corporations and conservation authorities for the management of their forest lands; and advising municipalities on bylaws respecting conservation of tree cover.

Private Land Forestry: Promoting forestry programs for use by private landowners.

SILVICULTURE

Forest Resources Inventory: Continuing program of re-inventory; compilation of reports and maps

for Crown Management Units; checking of Company inventory data; determination of productive areas on timber licences; preparation of contour plans; and Air Photo Library and map photo service.

Silvicultural Operations: Direction of the regeneration and stand improvement programs on Crown lands and on lands acquired for management under agreement.

TIMBER

Management Planning: Supervision of management plan preparation; preparation of planning manuals and volume tables; calculation of allowable cuts; and the direction of access roads program.

Scaling: Measurement of timber cut on Crown lands; development of new methods of measurement; and licensing and registration of scalers.

Marketing and Forest Economics: Development of industrial expansion; analysis of the economics of timber production; mill licensing; publication of industry directories and of regional studies of timber availability; and compilation of forestry statistics.

Sale of Timber: Issuance of timber licences; preparation of final returns for collection of stumpage charges; and compilation of cut statistics.

REFORESTATION SECTION Tree Production and Distribution

TREE PRODUCTION

To meet the increasing demand for planting stock, sufficient seed was sown at the ten forest tree nurseries for the production of 70,415,000 trees, an increase of 12 per cent in the production aim over 1966-67.

NURSERY STOCK PRODUCTION TARGET BY NURSERIES

Forest District	Nursery	Production Target
Kemptville	Kemptville Dryden	11,325,000 5,004,000
Kenora Lake Erie	St. Williams	5,257,000
Lake Simcoe	Midhurst Orono	10,581,000 6,813,000
Lindsay Port Arthur	Fort William	14,065,000
Swastika	Swastika Chapleau	12,855,000 2,000,000
Chapleau Gogama	Gogama	1,200,000
Sault Ste. Marie	Thessalon	1,315,000
Total		70,415,000

NURSERY STOCK PRODUCTION TARGET BY SPECIES

Species	Number of Trees
White Pine Red Pine Jack Pine Scotch Pine White Spruce Black Spruce Other Species	8,061,000 11,301,000 11,099,000 2,500,000 20,687,000 13,296,000 3,471,000
Total	70,415,000

NURSERY STOCK CONTROL

The control and distribution of nursery stock, available for distribution as provided by Section 7 of The Forestry Act and for use of Ontario, resulted in the distribution of 54,805,170 trees during the year, an increase of 5.9 per cent over 1966-67.

SUMMARY OF DISTRIBUTION OF NURSERY STOCK

For year ended March 31, 1968

Purposes	Nu	mber of T
Furnished in Respect of Private Lands Furnished For Educational or Scientific Purposes Furnished For Use of Ontario Miscellany	 	237
Total	 	54,805

SPECIES	Planted on Private Land	Use of Ontario	E&S	М
White Pine	1,229,915	6,677,249	49,410	
Red Pine	3,055,500	6,173,511	46,810	
Jack Pine	219,400	9,856,675	2,925	
Scotch Pine	1,291,550	69,024	23,260	
	2,316,095	16,098,350	65,635	100
White Spruce	86,850	4,425,015	1,200	
Black Spruce	426,550	53,662	17,175	
Norway Spruce	725	617,075	125	
Red Spruce		,	10,725	
White Cedar	779,395	67,053	10,723	
Red Cedar	1,000	347	400	
European Larch	67,750	1,444	600	
Tamarack	21,025	13,882	125	
White Ash	96,905	26,416	2,385	
Red Oak	78,770	1,321	2,250	
Silver Maple	182,110	29,973	10,285	
	269,312	40,525	4,245	
Carolina Poplar	,	,	50	
Black Locust	53,675	1,200		
Black Walnut	26,600	4,600	50	
Others	16,390	91,076		
Total	10,219,517	44,248,398	237,255	100

NURSERY STOCK DISPOSITIONS For ten years ended March 31, 1968

			0.1	Tota
Year	Private	Use of Ontario	Other	Tre
1958-59	12,986,865	20,190,338	236,907	33,414
1959-60	13,809,125	27,562,247	310,753	41,682
1960-61	13,708,050	35,630,393	494,969	49,833
1961-62	11,505,775	31,666,580	22,508	43,194
1962-63		33,958,451	212,165	43,767
1963-64		34,752,240	154,045	43,922
1964-65	10,791,980	38,551,572	140,516	49,484
1965-66		34,481,899	3,225,055	49,019
1966-67	9,542,325	41,839,242	330,894	51,712
1967-68	10,219,517	44,248,398	337,255	54,805

REES FURNISHED FOR PRIVATE LANDS

r year ended March 31, 1968

unty or Territorial	Tree	
District	Orders	Trees
70,000	07	75.050
goma	97	75,050
	95	163,050
uce	103	96,750
rleton	114	134,000
chrane	8	7,525
ifferin	109	307,225
ındas	31	26,475
ırham	112	275,500
in	70	65,625
ex	71	67,675
ontenac	145	161,925
engarry	61	276,350
enville	74	187,450
ey	144	417,925
Idimand	56	72,125
liburton	35	28,600
Iton	115	215,575
stings	80	161,725
ron	57	93,800
nora	36	143,325
nt	59	58,600
nbton	65	91,975
ark	81	130,875
eds	66	60,225
nox & Addington	50	54,325
coln	71	70,050
nitoulin	10	156,850
ddlesex	143	234,650
skoka	95	268,800
pissing	23	122,425
rfolk	170	262,500
rthumberland	74	119,225
tario	153	335,100
ford	118	360,125
ry Sound	84	192,525
1	155	385,875
th	62 ,	48,325
erboro	90	356,225
scott	21	90,775
ice Edward	35	19,475
ny River	29	130,187
frew	121	821,750
sell	32	153,825
coe	263	881,685
mont	18	46,000
bury	48	145,675

Thunder Bay	102 19	185,175 11,400
Victoria	52	37,850
Waterloo	116 125	200,250 191,400
Wellington	133	193,175
Wentworth	174	310,495
York	330	514,050
Total	4,800	10,219,517

TREES FURNISHED For year ended March 31, 1968

Forest District	For Private Lands	*For Use of Ontario
Chapleau		3,546,800
Cochrane		2,532,000
Fort Frances	. 130,187	1,129,000
Geraldton		3,445,000
Gogama		3,790,850
Kapuskasing		3,604,725
Kemptville	1,105,975	2,049,950
Kenora	143,325	1,015,600
Lake Erie	1,114,600	189,760
Lake Huron	2,099,470	668,775
Lake Simcoe	2,423,935	502,699
Lindsay	817,400	966,963
North Bay	—	1,674,500
Parry Sound	461,325	895,214
Pembroke	944,175	1,855,326
Port Arthur	185,175	2,069,182
Sault Ste. Marie	75,050	3,291,200
Sioux Lookout	- 75,050	1,807,925
Sudbury	302,525	3,255,105
Swastika	11,400	3,982,050
Tweed	397,450	1,354,587
White River	337,730	530,000
Unclassified		91,187
		51,107
Total	10,219,517	44,248,398

*Includes nursery stock furnished to all provincial government departments for planting on government or publicly owned land

SEED COLLECTION

The inventory of forest tree seed in storage at the Ontario Tree Seed Plant at Angus, as of June 1, 1967, was about 2,903,000,000 viable seeds of 47 species, weighing 477,395 ounces or nearly 15 tons, and valued at approximately \$487,000.00. The 1967 crop year was an excellent one for most species, particularly the spruces. It was a very poor crop year for red pine.

1967 SEED CROP

Species	Number of Bushels Collected
White Pine	. 2,124
Red Pine	
Scotch Pine	. 403
White Spruce	. 2,486
Black Spruce	. 5,944
Black Walnut	
Other Species	. 425
Total	. 18,324

TREE IMPROVEMENT

Through application of the scientific principles of forest genetics, we are improving the quality and increasing the quantity of available seed. Our approaches include the selection of additional "plus trees", the development of seed production areas, and the planting of grafted trees in seed orchards. The program is concerned mainly with white pine, red pine, jack pine, white spruce, black spruce and red spruce.

During the year we collected 6,310 scions from "plus trees"; these were grafted at our four co-operating nurseries. A total of 33.6 acres of seed production area was thinned, released or improved in other ways for seed production purposes. Planting of 2,782 grafted trees was completed on 20.5 acres of seed orchard.

Another phase of our program was the grafting of 1,500 scions from white pine trees which have shown resistance to blister rust disease.

SEED PRODUCTION AREAS AND SEED ORCHARDS As of March 31, 1968

	Number	Acres
Seed Production Areas	. 24	266.2
Seed Orchards	. 12	84.8

NURSERY SOIL MANAGEMENT

Our objective is to maintain the balance of soil nutrients to produce top quality seedlings. During the year, 420 soil samples and 372 plant samples (consisting of approximately 12,000 seedlings) were analyzed for chemical composition. We use analysis data to evaluate soil and plant condition and in the preparation of soil amendments needed to produce high quality stock.

Herbicides and soil fumigants are being tested constantly and, when a new technique proves effective in nursery practice, it is used to reduce disease, control weeds, and increase seed germination and seedling growth.

Disease and nutrient studies are also being carried out on a co-operative basis with research staff of Research Brand and the Canada Department of Forestry and Rural Development.

Agreement Forest Administration

Section 2 of The Forestry Act authorizes the Minister to enter into agreements with the owners of lands suitable for forestry purposes for the management of such lands, and to make grants to any conservation authority or to any municipality to encourage and assist it in the acquisition of lands that are to be managed under such an agreement.

A total of \$116,771.44 in grants to assist with the acquisition of 6,901.91 acres of land was paid during the year. Canada contributed \$41,721.84 of the foregoing amount to Ontario under agreement made between Canada and Ontario pursuant to their respective Acts.

TREES CONSERVATION

Under authority of The Trees Act, and with the approval of the Minister of Lands and Forests, counties or municipalities in territorial districts may pass by-laws with respect to private lands to restrict and regulate the destruction of trees by cutting, burning or other means. Such by-laws have been passed by the following municipalities to permit the cutting of designated species to specified minimum diameter limits.

Counties: Brant, Bruce, Dufferin, Elgin, Grey, Haldimand, Halton, Hastings, Huron, Lambton, Leeds & Grenville, Lincoln, Middlesex, Norfolk, Northumberland & Durham, Oxford, Peel, Perth, Renfrew, Waterloo, Welland, Wellington, and Wentworth.

Townships: Brunel and Hudson.



2,000,000 red pine transplants, Midhurst Forest Station.

AGREEMENT UNDER SECTION 2 OF THE FORESTRY ACT As of March 31, 1968

Agreement With	Date of Agreement	Number of Acres Added during year	Tot
GOVERNMENT OF CANADA:			
National Capital			
Commission	Aug. 16, 1961		3,63
CONSERVATION AUTHORITIE			
Ausable River			4,29
Big Creek Region	,	205.00	3,69
Catfish Creek		203.00	50
Central Lake Ontario			19.
Crowe Valley	1 '		20
Ganaraska Region			8.44
Grand River		100.00	5,86
Hamilton Region			1.
Lakehead Region			1,25
Lower Thames Valley			30
Maitland Valley		_	94
Metropolitan Toronto and Regio			1,92
Moira River		382.00	15,95
Napanee Valley			6,66
Niagara Peninsula		_	18
North Grey Region		100.00	7,15
Otonabee Region		100.00	1,44
Otter Creek	Apr. 26, 1957		1,53
Sauble Valley	Sept. 29, 1959	248.00	3,00
Saugeen Valley	Dec. 15, 1952	536.00	13,00
			contin

GREEMENT (continued)

90.00	1,188.50
	150.00
80.00	3,444.36
_	50.00
_	15,533.35
	680.00
100.00	2,405.00
	8,378.08
	1,498.63 1,439.00
	,
-	75.39
571.50	3,635.00
3/ 1.30	8,872.00
Address	1,186.00
	1,335.50
E00.00	5,719.00
	3,821.00
	716.56
	24,525.06
	11,107.00
400.00	20,693.74
	0.040.4=
	2,048.45
_	8,319.00
—	710.48
100.00	1,100.00
	989.30
107.38	4,238.08
_	60.00
_	175.00
_	162.00
	808.44
	140.00
_	619.00
_	90.00
	200.00
	144.00
	430.80
	400.00
	400.00
1.041.00	3,632.00
	81,388.93
5,060.91	129,075.62
	3,229.24
6,901.91	217,325.79
, , , , , , , , , , , , , , , , , , , ,	211,323.17



Fertilizing tree seedlings through irrigation system, Kemptville Forest Station.

Private Land Forestry

The intent of the private land forestry policy is to improve the management of privately owned forest land. Ultimately, the benefits of this improvement will be an increased flow of better-quality logs and other products for wood-using industries and greater returns to woodland owners. The private land forestry program provides a free advisory service to landowners on planning and establishing plantations and tending and marketing forest crops.

In addition, under The Woodlands Improvement Act, passed in 1966, landowners may enter into agreement with the Minister for improvement of their lands through tree planting and rehabilitation of existing woodlands. Department staff plant trees and carry out stand improvement in accordance with mutually agreed upon plans. The owner pays for the nursery stock and agrees to protect his woodland.

Under Regulations of The Woodlands Improvement Act, 33 private forest management areas were designated in southern Ontario. As of January 1, 1968, 21 of these areas became eligible for assistance. Management plans for 14 of these designated areas have been prepared. Within the areas designated in 1968, 208 forestry agreements were made with private landowners.

ADDITIONAL CONTRIBUTIONS TO PRIVATE LAND FORESTRY

- 1. Conducted tours for school groups and others at St. Williams, Orono, Midhurst and Kemptville Forest Tree Nurseries and the Ontario Forest Seed Plant at Angus. Approximately 6,700 school children participated therein. Conducted field tours, field days and meetings held by the districts totalled 338.
- 2. Co-operated in preparing and manning exhibits at the Toronto C.N.E., the Ottawa C.C.E.A., the London Fair, the Royal Winter Fair, and the International Ploughing Match. Districts prepared and manned over 50 exhibits at local fairs and exhibitions.
- 3. Concluded the co-ordination and direction of the Ontario Centennial Tree and Shrub Planting Program with school children. During the three-year program, 140,000 students, representing 4,300 classes from 2,400 schools, planted 1,512,000 forest trees.
- 4. Co-operated with the Ontario Department of Agriculture and Food in providing guidance to the Ontario Maple Syrup Producer's Association and support for the Ontario Christmas Tree Growers Association Incorporated.

SUMMARY OF THE FORESTRY ADVISORY AND ASSISTANCE SERVICES PROVIDED TO PRIVATE LANDOWNERS AND ORGANIZATIONS

F	or year ended March 31, 1968		
Α	. Number of inquiries received		
В	Number of field inspections made (a) to advise on planting (b) to advise on forest management (c) to advise on maple syrup and Christmas trees (d) for miscellaneous purposes e.g. insects, shade trees, windbreaks	1,123 817 190 1,027	
С	Number of properties for which management programs were prepared (a) advisory service programs (b) Woodlands Improvement Act programs	182 382	
D	Total number of acres of private forest land for which management programs were prepared	9,693 21,754	
E.	Total number of acres of forest land treated during the year under The Woodlands Improvement Act	3,043 1,738	
F.	Total volume of timber marked under the advisory service program (a) saw timber (b) pulpwood	4,390 / 655 d	
G.	Number of youth groups serviced (a) 4H Forestry clubs (b) 4H Conservation clubs (c) resource rangers (d) other Groups—Boy Scouts, Girl Guides, etc.	18 10 4 148	
Н.	Hours spent on forestry instruction (a) University of Guelph (b) Kemptville Agricultural School (c) Western Ontario Agricultural School—Ridgetown	26 50 6	

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- 5. Co-operated in the revision of publications required to interest and instruct landowners in essentials of private land forestry.
- 6. Provided instruction in forestry and conservation to sixty farm boys and girls at the leadership training camp organized by the Ontario Department of Agriculture and Food.

at Michael CRE SECTION onest Resources Inventory

Ouring the year under review, air photography was ompleted on 10,904 square miles in northern Ontario nd 367 square miles in southern Ontario. In the renventory program, field work was carried out on ,750 square miles in Fort Frances, Kenora and Sioux ookout Districts.

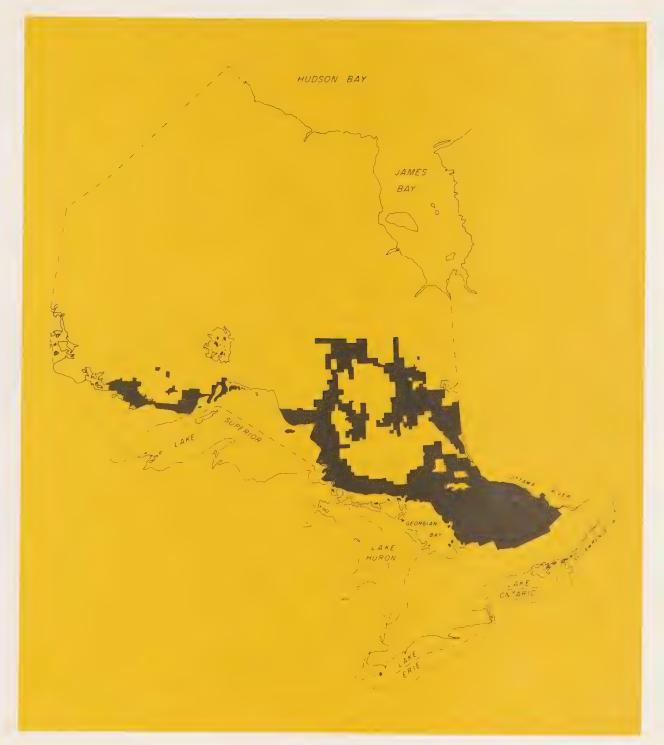
Forest stand maps and tabulated inventory data, such sarea classification, detailed stand description, volume nd area summaries by age-classes, were completed for 197 square miles. The multiplex machine was used to lot the contour and form lines of four Provincial Parks overing an area of 18,285 acres.

The photo processing unit produced 135,446 contact rints, 2,959 mosaics, 2,795 enlargements, 320 diapositives, 794 copy negatives and 3,187 repropositives. The following table shows the gross value of production the photo processing unit for each of the last puryears.

ear	Cash Receipts	Value of Department Work	Total
964-65	\$69,386.13	\$19,802.26	\$89,188.39
965-66	50,755.68	24,592.23	75,347.91
966-67	56,754.20	31,296.58	88,050.78
967-68	53,270.95	30,842.42	84,113.37

dynamical Operation.

lvicultural Operations include the regeneration and nding of forests on Crown and Agreement Forest nds. They comprise site preparation for regeneration forest stands; the production and planting of tubed edlings; planting of nursery stock; seeding, both rial and ground; and forest tending activities such as lease, thinning and pruning during the life of the rest.



Ogress map showing areas on which revised forest inventory s been completed as of March 31, 1968.

SUMMARY OF SILVICULTURAL OPERATIONS

On Crown Land and Agreement Forests For year ended March 31, 1968

Regeneration Program	Acres
Nursery tree planting	62,325
Tubed seedling planting	19,989 11,135
Direct seeding	27,756
Sub-total:	121,205
Tending Program	
Various treatments	42,984
Total:	164,189

TREES PLANTED BY DISTRICTS

	Crown	Agreement Forests	
Forest District	Nursery Trees	Tubed Seedlings	Nursery Trees
Chapleau	3,559,700	940,000	_
Cochrane	2,534,831	937,000	_
Fort Frances	1,144,500	690,400	
Geraldton	4,743,800	1,970,195	
Gogoma	3,181,577	1,115,500	
Kapuskasing	4,498,561	1,520,900	_
Kemptville	369,663		1,707,050
Kenora	948,585	741,180	_
Lake Erie	184,600		14,900
Lake Huron	13,750		675,275
Lake Simcoe			337,000
Lindsay	790,000		74,775
North Bay	1,601,730	1,276,610	
Parry Sound	892,850	750,123	
Pembroke	1,569,775	804,335	263,000
Port Arthur	2,021,800	879,066	40,000
Sault Ste. Marie	3,051,625	1,136,114	
Sioux Lookout	1,776,905	405,093	_
Sudbury	3,343,536	1,200,000	_
Swastika	3,834,550	2,216,360	
Tweed	1,172,800		170,250
White River	546,000	2,236,400	
Total:	41,781,138	18,819,276	3,282,250

ARTIFICIAL REGENERATION

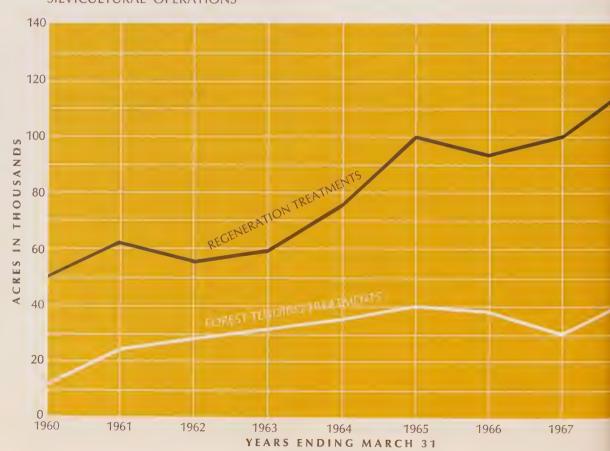
TREES PLANTED BY SPECIES

	Crown I	Agreement Forests	
Species	Nursery Trees	Tubed Seedlings	Nursery Trees
White Pine	5,332,267	422,648	791,175
Red Pine	5,177,721	4,783,676	850,775
lack Pine	11,051,963	4,212,800	357,600
White Spruce	14,039,260	3,676,282	1,026,875
Black Spruce	5,525,463	5,723,870	33,800
Other Species	654,464		222,025
Totals:	41,781,138	18,819,276	3,282,250

TREES AND ACREAGE PLANTED

A. Crown Land	Nursery	Stock	Tubed Seedlin				
	Trees	Acres	Trees	Ac			
(1) Unalienated (2) Licensed	20,453,494 21,327,644		8,903,733 9,915,543	10,			
Sub-totals	41,781,138	58,145	18,819,276	19,			
B. Agreement Forests	3,282,250	4,180	Nil	7			
Total:	45,063,388	62,325	18,819,276	19,			

SILVICULTURAL OPERATIONS



REES PLANTED ON AGREEMENT FORESTS Y OWNERSHIP

OVERNMENT OF CANADA		
ational Capital Commission		392,70
ONSERVATION AUTHORITIES:		
Ausable	143,900	
Cattish	9,200	
Ganaraska	39,775	
Grand	72,000	
Lakehead Region	40,000	
Martland	22,550	
Metro Region	46,700	
Moira	61,250	
Napanee	24,000	
North Grey Region	11,900	
Sauble	174,700	
Saugeen	89,000	
South Nation	234,325	
Upper Thames	350	969,650

OUNTIES

Bruce	61,000	
Carleton	84,000	
Dufferin	13,300	
Durham	35,000	
Grey	48,400	
Huron	28,475	
Lanark	101,900	
Leeds and Grenville	689,250	
Middlesex	5,700	
Oxford	2,000	
Prescott and Russell	204,875	
Rentrew	348,000	
Simcoe	251,000	
Waterloo	22,000	
Wentworth	25,000	1,919,900

3.282.250

DIRECT SEEDING ON CROWN LANDS

Forest District	Aerial (Acres)	Ground (Acres)	Total (Acres)
V a = = ==	F.O.	60	110
Kenora	50	60	110
Sioux Lookout	1,819	134	1,953
Geraldton		1,030	1,030
White River	1,000	113	1,113
Chapleau	1,429		1,429
Gogama	1,580		1,580
Sault Ste. Marie	2,070		2,070
Cochrane	500		500
North Bay	180	1,170	1,350
			44.405
Totals	8,628	2,507	11,135

SPECIAL PROJECTS

Junior Rangers: Timber work, including tree planting, stand improvement, cone collection and nursery work,

occupied 12,000 man-days. The total area covered in this programme was 5,700 acres.

Prison Camps: The Department supplied technical assistance to seven forestry camps operated by the Department of Reform Institutions. About 18,500 mandays of labour were provided to this Department by the inmates. The total area treated by planting, pruning, thinning and cull tree removal was 1,000 acres. The inmates also cleared roads, camp sites, fireguards and compartment boundaries, built bridges and repaired fences, burnt brush and engaged in many other useful activities.

Technical assistance was also supplied to the Beaver Creek Correctional Camp operated by the Federal Department of Justice. About 1,200 man-days of inmate labour was provided to the Department. The inmates pruned, thinned, removed cull trees and did related forestry work.



e planting on privately owned land prepared by intour furrowing.

	Site Preparation				tting Meth Regenera			Forest Tending								
Forest District	Nat. Regen.	Art. Regen.	Sub- Total	Modified Harvest Systems	Seed- Tree System	Sub- Total		Herbicide Spraying	Thinning and Impr. Cutting	Girdl. Frill. & Poisoning	Marking for Im- provement	Prun- ing	Fertil- ization	Harvest Cutting	Sub- Total	To
Crown Lands																
Chapleau	180	2,608	2,788				630	3,070	-			-	_	_	3,700	6
Cochrane	520	2,428	2,948	30		30			_							2
Fort Frances	100	406	506				_		_		-		_		_	
Geraldton	2,469	3,909	6,378	208		208	476	3,370			-			-	3,846	10
Gogama	480	3,051	3,531	_			_	2,000	_					_	2,000	Ī
Kapuskasing		4,830	4,830	_			283	5,651	3				_	_	5,937	10
Kemptville		88	88			-	_	_	5	70		_			75	
Kenora	2,092	2,930	5,022		200	200	_	_						_	_	Ī
Lake Erie		2	2			-	_	_	50			38	_		88	
Lake Huron						_	_	_				_			_	
Lake Simcoe				_	-	_		-	-		_	300	-	_	300	
Lindsay	1,172	803	1,975						120	674		,—	_		794	2
North Bay	1,519	3,460	4,979	200		200	872	726			904	_	_		2,502	7
Parry Sound	460	1,422	1,882	1,069		1,069	25		120	697	1,580	_	water-con-		2,422	1
Pembroke	875	264	1,139	5,358	278	5,636	168	200	64	150		70			652	7
Port Arthur	***************************************	6,063	6,063	962	140	1,102	98		_					and a second	98	7
Sault Ste. Marie	2,819	1,198	4,017	600		600	105	1,636	394	116	1,159		118		3,528	8
Sioux Lookout	3,812	899	4,711		_		119		_			_		_	119	4
Sudbury	340	776	1,116				198	1,500						_	1,698	
Swastika		5,870	5,870	-	_			4,500	824	-					5,324	1
Tweed		10	10	773	1,100	1,873	315	400	70	147	2,718	33	_		3,683	1
White River		3,406	3,406	_		_	2					_		_	2	3
Sub-Total:	16,838	44,423	61,261	9,200	1,718	10,918	3,291	23,053	1,650	1,854	6,361	441	118	_	36,768	108
Agreement Forests	,															
Kemptville		481	481		-		345	214	363	70		476	_	1	1,469	
Lake Erie	_	_			-		40		80	86		57	_	Street Street	263	
Lake Huron	_	78	78			_	301	_	40	387	56	291		_	1,075	
Lake Simcoe	*****		_				68	_	764	52	47	958	_		1,889	
Lindsay	-		_		-		125		77	104		792	_	300	1,398	
Tweed Pembroke	_	_	_			_			6 80		est-financials	36		Name of the last o	6 116	
Sub-Total:	_	559	559	_	_		879	214	1,410	699	103	2,610		301	6,216	(
TOTAL:	16,838	44,982	61,820	9,200	1,718	10,918	4,170	23,267	3,060	2,553	6,464	3,051	118	301	42,984	11

IMBER SECTION orest Management Planning

ne development of forest areas is based on manageent plans that provide detailed information about the slume of annual cut, cutting methods, regeneration eatments, road and camp locations, and other facts sential to orderly management.

Standard management plans are based on inventory ita gathered using photo interpretation, point saming, and computer compilation methods. The infrmation is entered in stand ledgers, which also serve a record of changes. Standard plans have been presented following the re-inventory of Crown management hits started in 1958. The essentials of this type of anning are contained in the Manual of Management an Requirements.

The initial management plans, based on the invenry method used prior to 1958, are retained until reaced with standard plans, and form the basis for the anagement of a large proportion of the Crown manement units in the Province.

Management plans form a framework into which 10ar operating plans are fitted. An operating plan shows detail the stands to be cut, regenerated, and tended, a roads to be built, and other improvements to be ade to carry out operations on the management units. The status of management plans is as follows:

Crown Management Units: The plans for these units prepared by Department staff. There are 77 Crown its, comprising an area of 91,987 square miles, with management plans.

			idard management plans in force	1,222	sq.	mı.
	pl	aı	ns being processed for Ministerial			
			roval	4,418	sq.	mi.
3	in	it	ial management or operating plans		-	
	in	f	orce	76,511	sq.	mi.
	m	ar	nagement units not under plans.	3,836	sq.	mi.
			A.A			

Company Management Units: The management ins for these units are prepared by licensees. There is 66 company units with 99,351 square miles under ince to 45 companies, with 66 management plans.

ann	roved management plans	64 479 ca mi
		07,77 J 3q. IIII.
pia	ns being processed for Ministerial	
app	roval	5.481 sg. mi.

appro	val				 5,481	sq. mi
plans	being	revised	or	prepared	 29,391	sq. mi

Agreement Forest Units: The management plans for the units are prepared by Department staff. There are funits covering approximately 339.6 square miles (or 5,326 acres), with 60 management plans.

Sapproved standard plans 56,594 acres

17	plans being processed for Ministerial	
	approval	
16	plans in process of preparation	49,696 acres

18 interim or annual plans in force and

land acquired since 1960 inventory . . 62,127 acres

Scaling

As a result of trials carried out over the past few years, several new scaling techniques became operational during the past year. The tree-length scaling method, in which butt diameters of entire trees are measured before they are cut into logs or bolts, was used on over seventy different operations throughout northern Ontario. Sample scaling, in which only a limited number of pieces are measured and the remainder counted, with a total volume calculated by statistical methods, was used on several large operations. Measurement by one-inch classes, rather than half-inch classes, commenced during the year and was adopted for the entire province.

Further trials and tests were carried out to extend sample scaling to other operations, and, during the year the Department purchased a weigh scale to test the possibilities of weighing wood as a method of measurement. This scale will be installed in the Lakehead area for use next year.

A large operational test of computer calculation of scaling volumes was carried out during the year. As a result of this test, a province-wide computerized scaling program will be initiated in 1968-69.

Use of these new methods has speeded and simplified scaling operations so that the flow of wood from stump to mill is not impeded, allowing logging operators to use the most modern techniques and equipment.

Scaling examinations were held during the past year at the following locations on the dates noted. Ontario Forest Technical School, Dorset, April 14, 1967; Huntsville, May 19, 1967; and Sault Ste. Marie, September 22, 1967. A total of 197 new scalers were licensed at these courses, and 201 licences were renewed for a three-year period.

Marketing and Forest Economics

In reviewing events of the forestry sector in 1967, one should have in mind the historic and current pattern of developments in domestic and foreign economies at large, because it is this larger context that actually controls much of what takes place in any single activity. Only a very brief outline of this framework is possible in this report.

Canada is sharing (in common with the United States, Western Europe, and Japan) a period of rapid growth

of unprecedented length which began in the early months of 1961. At that time, there was considerable slack in the economy, such as relatively high unemployment and large amounts of unused productive capacity. Thus, the growing pains were quite comfortable at first. However by 1965, shortages began to appear, and competition for the factors of production gave rise to higher costs. Wages and the cost of capital rose sharply, followed by price increases. This spiral was repeated again and again, and the end of this inflationary process is not yet in view. In nearly seven years of growth, Canada's Gross National Product has increased by about two-thirds in dollar terms, about forty per cent in real terms.

Thus, it is not surprising that this burgeoning should be reflected in the amount of Crown timber cut in 1966-67. In fact, the more than 4.2 million cunits is the highest cut on record. The trend line of production for the past 10 years shows a slope of 28.3 per cent. Most of the growth has occurred in pulpwood.

While our pulp and paper industry maintains a fairly steady growth rate, developments elsewhere have cast a shadow over further expansion in the near future. The world now has surplus capacity for both newsprint and sulphate pulps, which condition is expected to continue into the '70s. The sensational development in newsprint production in the southern States has eroded some

of the traditional markets for eastern Canada mills, resulting in reduced operating ratios.

While the production of lumber has not increased proportionally to outputs of manufacturers in general, the market situation has been particularly favourable recently. This can be directly related to the construction industry, particularly housing. A development of fairly recent origin that has helped keep larger sawmills financially sound is the production of pulpchips from slabs, edgings, and trim—materials formerly mostly wasted. The accompanying charts clearly illustrate the growth and the patterns of present production and consumption.

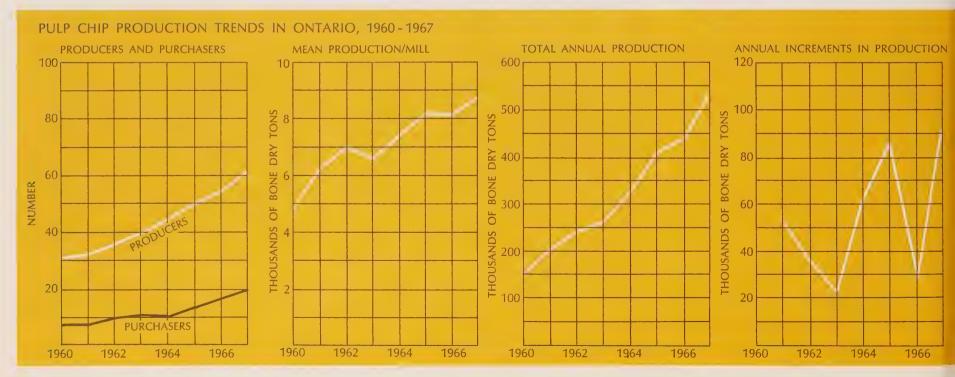
In addition to interpretation of the current scene as above, the Economics Unit has been active in the analysis of problems confronting business and resource managers. Three examples of this activity are given below:

Railway Freight Rate Adjustments. Sawmill operators in one area claimed that existing freight rate schedules disadvantaged their marketing of products relative to other areas. Following a meeting with railway officials, these rate discrepancies were resolved.

Wood Industry Studies in relation to Specific Communities. Communities beset by high unemployment or

REGIONAL PRODUCTION AND CONSUMPTION OF ONTARIO PRODUCED PULP CHIPS — 196

Production	Northwestern Region	Northeastern Region	Quebec	Southern Region	U.S.A.
No. of Producers	10	29	_	22	_
Quantity (B.D. Tons)	137,030	249,106	_	144,656	_
Percent of Total Quantity	25.8%	46.90/0	_	27.3%	_
Consumption					
No. of consumers	4	5	6	3	4
Quantity (B.D. Tons)	265,992	128,197	59,957	38,739	37,907
Percent of Total Quantity	50.1%	24.2º/o	11.3%	7.3%	7.1º/o



per problems have been the subject of special studies at related the quantity and characteristics of timber all ability to manufacturing processes and marketing portunities. In this way, firms have been located to mutual advantage of themselves and the committees.

nefit-cost analysis of silvicultural projects. Responility for keeping forests of Ontario in a productive te rests with this Department, and the projects dertaken in the year under review are described elseere. While the successful practice of silviculture uires a high level of ecological expertise, decisions th respect to the choice of projects can best be made economic grounds. Thus a benefit-cost ratio appach has been adapted to silvicultural use, which not ly permits the local manager to measure the anticied dollar return in terms of dollars expended, but o is in harmony with the province's plan to adopt a nmon measure of budget justification. Further rerch is underway to develop an easily applied measure silvicultural need, which will complement the applied easure of investment efficiency.

ale of Timber

e volume of wood cut from Crown lands in 1966-67 ows a very substantial increase of 37,628,039.80 cubic ot, or 9.8 per cent, over the cut in the preceding year.

t is of interest to note that the gain in output is not iformly distributed. In 13 Districts, the change was sitive, ranging in amounts from about two thousand about 16 million cubic feet for a total of 51 million pic feet. In seven Districts, the change was negative, ging from 12 thousand to about four million cubic to a total of 13.4 million cubic feet.

The total value of wood cut increased by 135,960.80, or 8.4 per cent.

SUMMARY OF VOLUME AND VALUE OF WOOD CUT FROM CROWN LANDS

For year ended March 31, 1968

Fuelwood Hardwood*	584,851.00 1,555,182.95	5,964.13 14,343.6
Poplar	21,259,877.63	208,642.83
Oak	320,672.75	15,631.54
Maple	9,040,808.61	419,150.52
Elm	247,037.49	10,766.6
Cherry	25,419.86	1,087.3
Butternut	1,420.93	28.6
Birch, yellow	7,400,215.46	624,262.2
Birch, white	2,963,633.50	51,472.7.
Beech	432,035.27	10,105.3
Basswood	359,962.26	21,602.8
Hardwoods Ash	85,231.64	\$ 3,040.11
Total	379,192,754.16	\$13,142,144.20
Fuelwood	442,673.20	3,191.5
Christmas Trees	6,178.60	5,853.6
Tamarack	85,960.19	1,682.2
Spruce	223,501,548.23	8,237,621.3
Pine, white	22,073,266.46	1,181,341.7
Pine, red	6,961,657.10	430,312.1
Pine, jack	111,791,370.03	2,968,288.5
Hemlock	2,759,023.49	72,016.4
Cedar	205,487.82	7,568.8
Softwoods Balsam	11,365,589.04	\$ 234,267.72
Species	(cu. ft.)	Value

NOTE: The value of export levy (\$53,327.92) is not included in above.

CROWN TIMBER SALES, 1967-68

New Licences issued under section 2 C.T.A	11.9 square miles
New Licences issued under section 3 C.T.A	548.8 square miles
New Licences issued under section 5 C.T.A.	74.0 square miles
Total	634.7 square miles

Abandonments: In the fiscal year 1967-68, licensed areas in the amount of 998.3 square miles were abandoned.

AREA UNDER CROWN TIMBER LICENCE

As of March 31st (Square Miles)

Year	Licences under Section 2 C.T.A.	Licences under Section 3 C.T.A.	Licences under Section 5 C.T.A.	Total Area
1963-64	2,556.9	99,679.5	18.2	102,254.6
1964-65	2,565.0	103,347.5	4.9	105,917.4
1965-66	2,466.7	100,362.8	1.2	102,830.7
1966-67	2,006.5	104,269.9	nil	106,276.4
1967-68	1,704.2	104,134.6	74.0	105,912.8

LICENSING OF MILLS

Mills licensed under the Crown Timber Act are distributed as shown in the following table. The trend toward fewer mills continues with a shift from small to larger sawmills dominating the change.

	1967	1966
Sawmills:		
Lumber capacity over 50 M fbm	28	25
Lumber capacity 10 to 50 M fbm	100	113
Lumber capacity under 10 M fbm	644	655
Miscellaneous sawn products	96	97
Veneer mills	29	28
Pulp mills	25	26
Total:	922	944

^{*}This is the volume of mixed hardwood pulpwood that was not separated into individual species.

SUMMARY OF VOLUME AND VALUE OF WOOD CUT FROM AGREEMENT FORESTS

	1967-68		1960	6-67	196	55-66	19	1964-65	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	
Pulpwood (Cords)	10,296.46	\$46,183.09	10,015.34	\$ 64,045.26	9,512.05	\$ 72,050.10	13,389.46	\$ 69,03	
Sawlogs (cu. ft.)	97,854.79	14,702.32	130,447.27	17,082.60	111,837.45	17,758.84	113,137.87	23,83	
Poles, Posts, Piling (cu. ft.)	4,676.82	1,762.15	85,815.31	33,344.66	74,280.45	30,381.33	120,342.38	23,20	
Fuelwood (cords)	217.30	511.12	1,889.63	10,119.01	730.39	3,666.17	4,126.91	17,27	
Christmas Trees (No.)	_	-	_	-	_	_	340	51	
Miscellaneous		6,313.79	_	5,635.98	_	7,375.60	_	7,52	
Total, all Products	996,201.21*	\$69,472.47	1,228,215.03*	\$130,227.51	1,056,725.30*	\$131,232.04	1,722,371.70*	\$141,39	

Equivalent cu. ft.*



FORESTRY STUDY UNIT

Terms of reference, guiding activities of the Fore Study Unit since September 1, 1964, were fulfilled June 2, 1967, when the Director, Mr. J. A. Brodie, weyed his final report. The 273-page report made total of 70 recommendations affecting a broad spect of problem areas in relation to the timber resource the province and to industries utilizing forest products.

Many of the recommendations were implement soon after receipt of the report. The time and met of application of other recommendations are uncareful study so that their implementation may disting the normal flow of business as little as possible.

Red pine poles, debarked, Orr Lake Agreement Fo

JMMARY

IMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
ard Foot Measure							
Ontario Scale							
Ash	6,172		355,755	66,496.26	1,779.01	1,068.58	2,847.59
Balsam	9,794		257,165	48,068.22	1,028.65	1,416.69	2,445.34
Basswood	34,796		1,883,902	352,131.21	9,419.71	12,111.02	21,530.73
Beech	45,966		2,194,683	410,221.12	3.292.12	6,491.96	9,784.08
Birch, white	89,911		4,409,750	824,252.34	6,622.38	23,071.07	29,693.45
Birch, yellow	515,327		39,574,547	7,397,111.59	197,863.89	426,367.17	624,231.06
Butternut	108		7,602	1,420.93	11.41	17.24	28.65
Cedar	10,416		268,064	50,105.42	805.87	779.77	1,585.64
Cherry	2,231		135,637	25,352.71	678.28	408.42	1,086.70
Elm	14,406		1,305,822	244,078.88	6,529.87	4,203.54	10,733.41
Hemlock	187,767		13,846,139	2,588,063.36	41,538.43	26,592.89	68,131.32
	658,949		47,637,655	8,904,234.58	238,238.66	178,622.12	416,860.78
Maple	30.850		1.638.686	306,296.45	8,193.64	7,255.81	15,449.45
	/		., ,	997,779.81	21,352.48	14,344.23	35.696.71
Pine, jack	211,269 416,913		5,338,122	5,240,872.71	140,193.69	141,698.82	281,892.51
Pine, red	,		28,038,669	20.076.488.78	537,046.36	551,802.41	1,088,848.77
Pine, white	1,151,663		107,409,215		10,892.77	12,862.72	23,755.49
Poplar	147,999		7,261,820	1,357,349.53	,	40,854.32	77,205.03
Spruce	193,496		9,087,524	1,698,602.62	36,350.71 47.78	70.28	118.06
Tamarack	497		15,922	2,976.07	47.70	70.20	110.00
tal Ontario Scale	3,728,530		270,666,679	50,591,902.59	1,261,885.71	1,450,039.06	2,711,924.77
Tree Length Material							
Balsam	16,013		762,794	142,578.32	3,051.18	1,255.30	4,306.48
Pine, jack	471,198		26,736,582	4,997,491.96	95,023.41	,,	95,023.41
Pine, red	313		33,862	6,329.35	169.31	76.19	245.50
Pine, white	119		29,415	5,498.13	147.08	66.18	213.26
Spruce	508,276		22,732,984	4,249,155.89	90,931.94	44,192.39	135,124.33
Total Tree Length Material	995,919		50,295,637	9,401,053.65	189,322.92	45,590.06	234,912.98
Total Board Foot Measure	4,724,449		320,962,316	59,992,956.24	1,451,208.63	1,495,629.12	2,946,837.75
	4,724,443		320,302,310	33,332,330,24	1,451,200.05	1,493,023.12	2,310,037173
bic Foot Measure Sawlogs							
Balsam	245,174		1,198,242.98	1,198,242.98	19,766.07	7,231.61	26,997.68
Birch, white	66,674		310,891,14	310,891.14	1,847.24	3,326.57	5,173.81
Cedar	728		4,768.43	4,768.43	109.96	107.43	217.39
Pine, jack	3,927,791		21,573,938.39	21,573,938.39	510,885.65	142,071.48	652,957.13
oine, red	67,564		489,710.39	489,710.39	16,160,45	16,937.03	33,097.48
Pine, white	93,139		1,110,531.27	1,110,531.27	36,647.56	36,853.52	73,501.08
Poplar	293,414		1,965,301.27	1,965,301.27	11,705.39	15,520.38	27,225.77
	233,717		7,500,700 1120	,,==,,			
							continued

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SUMMARY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
ubic Foot Measure							
Sawlogs (continued)							
Spruce	3,353,072		16,293,129.12	16,293,129.12	537,240.36	86,326.89	623,5
Tamarack	319		2,215.33	2,215.33	36.54	50.45	
Total Sawlogs (cubic)	8,047,875		42,948,728.32	42,948,728.32	1,134,399.22	308,425.36	1,442,8
Tree Length Material							
Balsam	106,632		741,086.24	741,086.24	12,209.18	3,852.01	16,0
Birch, white	21		513.22	513.22	3.08	3.08	
Pine, jack	931,272		10,748,508.61	10,748,508.61	252,777.55	50,534.11	303,3
Pine, white	2		61.00	61.00	2.01	1.65	
Poplar	22,022		471,593.54	471,593.54	2,804.92		2.8
Spruce	2,639,935		18,349,447.36	18,349,447.36	604,914.74	86,422.12	691,3
Tamarack	677		3,366.26	3,366.26	55.54	33.66	03.70
Total Tree Length Material	3,700,561		30,314,576.23	30,314,576.23	872,767.02	140,846.63	1,013,6
Boom Timber, Piling, Poles Boom and Dimension Timber							
Ash	1		20.28	20.28	1.01		
Balsam	41		430.72	430.72	7.55	9.68	
Beech	101		2,738.85	2,738.85	146.84	24.93	
Birch, yellow	1		14.92	14.92	.60	.30	
Cedar	390		4,646.70	4,646.70	145.61	59.18	
Elm	4		83.91	83.91	4.05		
Hemlock	864		21,561.99	21,561.99	1,103.34	104.64	1,:
Maple	103		2,800.83	2,800.83	149.98	26.63	
Pine, jack	1,433		21,851.92	21,851.92	574.83	59.70	6
Pine, red	3,313		58,981.72	58,981.72	2,965.05	1,745.26	4,7
Pine, white	585		6,131.98	6,131.98	235.06	263.39	,
Poplar	48		1,687.53	1,687.53	13.28	1.90	
Spruce	28,140		126,198.86	126,198.86	5,112.54	1,885.96	6,9
Piling							
Pine, jack	529		4,992.45	4,992.45	138.38	59.26	
Pine, red	59		1,289.98	1,289.98	60.54	38.70	
Poplar	24		827.69	827.69	47.89	50.70	
Spruce	177		5,472.49	5,472.49	245.61	49.50	2
Poles							
	141		373 71	373.71	11.21	1/ 22	
Poles Balsam	141 1,247		373.71 19.104.67	373.71 19.104.67	11.21 629.51	14.88 83.22	7

continue

JMMARY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
Poles (continued)							
Pine, jack	59,778		828,068.21	828,068.21	33,711.43	19,511.51	53,222.94
Pine, red	36,741		779,581.90	779,581.90	38,010.14	65,294.46	103,304.60
Pine, white	663		25,725.75	25,725.75	1,442.90	935.50	2,378.40
Spruce	2,060		51,372.55	51,372.55	2,798.25	836.59	3,634.84
Tamarack	185		356.83	356.83	12.21	2.06	14.27
Total Boom Timber, Piling, Poles	136,711		1,966,029.83	1,966,029.83	87,651.19	91,030.80	178,681.99
Total Cubic Foot Measure	11,885,147		75,229,334.38	75,229,334.38	2,094,817.43	540,302.79	2,635,120.22
ordage							
Pulpwood							
Ash		219.86		18,688.10	109.92	79.38	189.30
Balsam		108,615.17		9,232,289.45	151,993.35	32,368.49	184,361.84
Balsam (export levy)		(213.62)		(18,157.70)		213.62	213.62
Basswood		92.13		7,831.05	46.07	26.01	72.08
Beech		221.98		18,868.30	111.00	21.20	132.20
Birch, white		19,012.23		1,616,039.55	9,506.82	5,003.74	14,510.56
Birch, yellow		36.27		3,082.95	18.14	11.63	29.77
Cedar		256.60		21,811.00	359.24	66.67	425.91
Cherry		.79		67.15	.40	.20	.60
Elm		33.82		2,874.70	16.92	12.27	29.19
Hemlock		1,728.15		146,892.75	2,419.39	84.80	2,504.19
Maple		1,571.12		133,545.20	785.56	1,308.57	2,094.13
Oak		167.58		14,244.30	83.81	87.28	171.09
Pine, jack		851,207.07		72,352,600.95	1,701,921.42	117,702.39	1.819.623.81
Pine, jack (export levy)		(38,261.55)		(3,252,231.75)	1,7 01,321.42	19,131.88	19,131.88
Pine, red		4.506.39		383,043.15	6,290.06	580.06	6,870.12
Pine, white		9,959.11		846,524.35	13,943.11	1,899.63	15,842.74
Poplar		149,269.85		12,687,937.25	74,635.30	34,866.27	109.501.57
Poplar (export levy)		(9,777.00)		(831,045.00)	74,033.30	977.71	977.71
Spruce		. ,		182,482,480.35	6 007 775 04		
Spruce (export leav)		2,146,852.71		, ,	6,007,775.04	682,528.64	6,690,303.68
Spruce (export levy)		(33,004.71) 906.42		(2,805,400.35) 77,045.70	1 200 01	33,004.71	33,004.71
Tamarack					1,269.01	104.76	1,373.77
Hardwood		16,460.92		1,399,178.20	8,230.50	4,509.51	12,740.01
Total Pulpwood		3,311,118.17		281,445,044.45	7,979,515.06	934,589.42	8,914,104.48
Fuelwood							
Hardwood		6,880.60		584,851.00	3,831.65	2,132.48	5,964.13
Softwood		5,207.92		442,673.20	2,590.48	601.05	3,191.53
Fotal Fuelwood		12,088.52		1,027,524.20	6,422.13	2,733.53	9,155.66
							continued

SUMMARY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
ordage (continued)							
Bolts						40.25	,
Balsam		29.64		2,519.40	41.50	10.37 838.53	2,08
Birch, white		2,492.85		211,892.25	1,246.47 4,697.86	838.53 416.42	5,1
Pine, jack		2,348.93		199,659.05 1,785.00	29.40	410.42	3,1
Pine, white		21.00 56,106.81		4,769,078.85	26,686.83	18,396.42	45,0
Poplar		2,715.53		230,820.05	7,603.48	950.44	8,5
Spruce					40,305.54	20,612.18	60,9
Total Bolts		63,714.76		5,415,754.60			
Total Cordage		3,386,921.45		287,888,323.25	8,026,242.73	957,935.13	8,984,1
tiscellaneous							
Posts — lin. ft.			408	27.00	1.25	00	
Ash	9		135	27.00 207.00	1.35 10.35	.90 6.90	
Beech	69		1,035 225	45.00	2.25	1.50	
Birch, white	15 2		30	6.00	.30	.20	
Birch, yellow	43,624		525,258	105,051.60	3,395.34	1,027.04	4,4
Hemlock	264		3,960	792.00	39.60	26.40	• /
Maple	76		1.140	228.00	11.40	7.60	
Oak	44		660	132.00	6.60	4.40	
Pine, jack	30		240	48.00	2.40	2.60	
Spruce	62		500	100.00	5.00		
Mining Timber — cu. ft.							
Pine, red	14,783		1,847.90	1,847.90	30.44	61.96	
Pine, white	4,161		520.20	520.20	8.57	17.44	
Poplar	3,455		6,101.97	6,101.97	55.97	152.78	2
Spruce	7,560		14,768.94	14,768.94	487.20	109.66	5
Tie Blocks — cu. ft.	46 274		((420 (9	66 120 69	1,561.12	940.32	2,5
Pine, jack	16,371		66,430.68	66,430.68	1,301.12	940.32	4,~
Poker Poles — cords				4=4.004.	4 0 24 04	024 72	1 (
Hardwood		1,835.35	6 480 60	156,004.75	1,371.91	231.72	1,6
Christmas Trees	115,922		6,178.60	6,178.60	5,806.10	47.50	5,8
Total Miscellaneous	206,447	1,835.35		358,489.64	12,795.90	2,638.92	15,4
Total Board Foot Measure	4,724,449		320,962,316	59,992,956.24	1,451,208.63	1,495,629.12	2,946,8
Total Cubic Foot Measure	11,885,147		75,229,334.38	75,229,334.38	2,094,817.43	540,302.79	2,635,
Total Cordage		3,386,921.45		287,888,323.25	8,026,242.73	957,935.13	8,984,1
Grand Total	16,816,043	3,388,756.80		423,469,103.51	11,585,064.69	2,996,505.96	14,581,5
Number of permits issued and inclu-	ded in above 2	,805	Conversion factor: 1	cubic foot $= 5.35$	board feet		\$808,9
			1	cord = 85	cubic feet.		

CHAPLEAU

UMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

							C
Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
oard Foot Measure Ontario Scale							
Pine, red	42 27,098		3,877 2,603,052	724.67 486,551.78	19.39 13,015.27	13.67 5,249.41	33.06 18,264.68
Total Ontario Scale	27,140		2,606,929	487,276.45	13,034.66	5,263.08	18,297.74
ubic Foot Measure Sawlogs							
Balsam Pine, jack Poplar Spruce	4,907 1,420,280 1,108 370,654		24,188.33 7,036,953.85 9,556.39 1,624,731.63	24,188.33 7,036,953.85 9,556.39 1,624,731.63	399.11 165,368.43 57.34 53,616.16	84.67 29,743.85 57.34 5,813.58	483.78 195,112.28 114.68 59,429.74
Total Sawlogs (Cubic)	1,796,949		8,695,430.20	8,695,430.20	219,441.04	35,699.44	255,140.48
Tree Length Material							
Balsam Pine, jack Spruce	1,344 96,049 117,521		9,269.44 1,014,792.11 873,349.35	9,269.44 1,014,792.11 873,349.35	152.95 23,847.62 28,820.52	32.44 1,284.66 1,733.30	185.39 25,132.28 30,553.82
Total Tree Length Material	214,914		1,897,410.90	1,897,410.90	52,821.09	3,050.40	55,871.49
Boom Timber, Piling, Poles Poles							
Pine, jack	2,628		31,706.50	31,706.50	1,210.38	317.06	1,527.44
Total, Boom Timber, Piling, Poles	2,628		31,706.50	31,706.50	1,210.38	317.06	1,527.44
Total Cubic Foot Measure	2,014,491		10,624,547.60	10,624,547.60	273,472.51	39,066.90	312,539.41
ordage Pulpwood							
Balsam		207.31 1,169.99 94,700.76		17,621.35 99,449.15 8,049,564.60	290.24 585.00 189,401.52	18.26 1,319.83	308.50 585.00 190.721.35
Poplar Spruce Spruce		14,504.40 46,802.62		1,232,874.00 3,978,222.70	7,252.20 131,047.34	2,484.63	7,252.20 133,531.97
Total Pulpwood		157,385.08		13,377,731.80	328,576.30	3,822.72	332,399.02
Fuelwood							
Hardwood		105.50		8,967.50	52.75	52.75	105.50
							continued .

CHAPLEAU (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Value \$
Fuelwood (continued)							
Softwood		110.50		9,392.50	55.25	55.25	11
Total Fuelwood		216.00		18,360.00	108.00	108.00	21
Total Cordage		157,601.08		13,396,091.80	328,684.30	3,930.72	332,61
Total Ontario Scale	27,140		2,606,929	487,276.45	13,034.66	5,263.08	18,29
Total Cubic Foot Measure	2,014,491		10,624,547.60	10,624,547.60	273,472.51	39,066.90	312,53
Grand Total	2,041,631	157,601.08		24,507,915.85	615,191.47	48,260.70	663,45
Number of permits issued and inclu-	ded in above —	- 43					\$ 65

Conversion factor: 1 cubic foot = 5.35 board feet

1 cord = 85 cubic feet.

COCHRANE

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpag Value \$
Board Foot Measure Ontario Scale							
Birch, white	40 12,393 28		2,096 258,016 4,465	391.78 48,227.29	3.14 1,032.06	1.05	1,032
Spruce	11,448		172,621	834.58 32,265.61	22.33 690.48	21.21 517.86	1,20
Total Ontario Scale	23,909		437,198	81,719.26	1,748.01	540.12	2,28
Tree Length Material							
Pine, jack	117,508 73,352		5,086,247 1,620,980	950,700.37 302,986.92	20,344.99 6,483.92	4,862.94	20,344 11,346
Total Tree Length Material	190,860		6,707,227	1,253,687.29	26,828.91	4,862.94	31,69
Total Board Foot Measure	214,769		7,144,425	1,335,406.55	28,576.92	5,403.06	33,97

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OCHRANE (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
ubic Foot Measure Sawlogs							
Balsam Birch, white Cedar Pine, jack Pine, white Poplar Spruce	90,727 177 20 225,631 61 6,714 232,133		450,772.40 1,832.67 240.00 1,456,407.16 1,247.80 49,444.89 1,159,424.66	450,772.40 1,832.67 240.00 1,456,407.16 1,247.80 49,444.89 1,159,424.66	7,437.75 10.99 3.96 34,264.14 41.18 296.67 38,261.01	1,816.18 9.02 3.24 3,622.39 8.74 230.21 4,998.68	9,253.93 20.01 7.20 37,886.53 49.92 526.88 43,259.69
Tamarack	5		63.80	63.80	1.05	1.50	2.55
Total Sawlogs	555,468		3,119,433.38	3,119,433.38	80,316.75	10,689.96	91,006.71
Tree Length Material							
Pine, jack	31,839 129,577		349,199.00 1,014,022.00	349,199.00 1,014,022.00	8,206.18 33,462.73	5,761.78 7,098.15	13,967.96 40,560.88
Total Tree Length Material	161,416		1,363,221.00	1,363,221.00	41,668.91	12,859.93	54,528.84
Boom Timber, Piling, Poles Boom and Dimension Timber							
Pine, jack Spruce Poles	440 187		6,050.96 8,974.30	6,050.96 8,974.30	194.35 295.62	23.53 30.39	217.88 326.01
Cedar	720		14,754.05	14,754.05	473.72	11.54	485.26
Total Boom Timber, Piling, Poles	1,347		29,779.31	29,779.31	963.69	65.46	1,029.15
Total Cubic Foot Measure	718,231		4,512,433.69	4,512,433.69	122,949.35	23,615.35	146,564.70
ordage Pulpwood							
Balsam Birch, white Cedar Pine, jack Poplar Spruce Tamarack		16,939.02 390.01 1.54 32,523.84 6,282.98 283,952.76 49.96		1,439,816.70 33,150.85 130.90 2,764,526.40 534,053.30 24,135,984.60 4,246.60	23,714.61 195.03 2.16 65,047.68 3,141.51 795,067.73 69.94	3,542.28 142.45 5,120.73 2,196.58 96,399.56 4.99	27,256.89 337.48 2.16 70,168.41 5,338.09 891,467.29 74.93
Total Pulpwood		340,140.11		28,911,909.35	887,238.66	107,406.59	994,645.25
Fuelwood							
Hardwood		650.00		55,250.00	325.00		325.00
							continued

COCHRANE (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
Fuelwood (continued)							
Softwood		110.00		9,350.00	55.00		5
Total Fuelwood		760.00		64,600.00	380.00		38
Bolts							
Balsam		29.64 2,010.22		2,519.40 170,868.70	41.50 1,005.13	10.37 678.65	5 1,68
Pine, jack Pine, white Poplar		2,348.93 21.00		199,659.05 1,785.00	4,697.86 29.40	416.42	5,11
Spruce		19,637.30 2,715.53		1,669,170.50 230,820.05	9,818.70 7,603.48	7,804.96 950.44	17,62 8,55
Total Bolts		26,762.62		2,274,822.70	23,196.07	9,860.84	33,05
Total Cordage		367,662.73		31,251,332.05	910,814.73	117,267.43	1,028,08
scellaneous Posts — lin. ft.							
Cedar	253		187,600	37,520.00	18.76		1
pruce	399		2.397.00	2,397.00	78.96	5.64	84
otal Miscellaneous otal Board Foot Measure otal Cubic Foot Measure	652 214,769 718,231		7,144,425	39,917.00 1,335,406.55	97.72 28,576.92	5.64 5,403.06	103 33,979
Fotal Cordage	7 10,231	367,662.73	4,512,433.69	4,512,433.69 31,251,332.05	122,949.35 910,814.73	23,615.35 117,267.43	146,564 1,028,082
Grand Total	933,652	367,662.73		37,139,089.29	1,062,438.72	146,291.48	1,208,730
Number of permits issued and include Conversion factor: 1 cubic foot = 1 cord =		eet					\$43,23

ORT FRANCES

UMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
oard Foot Measure Ontario Scale							
Ash	24		1,133	211.78	5.67		5.67
Cedar	1,902		34,987	6,539.63	104.97	106.34	211.31
Pine, jack	295		15,283	2,856.64	61.13		61.13
Pine, red	587		38,862	7,263.93	194.32	175.53	369.85
Pine, white	537		50,608	9,459.44	253.04	195.93	448.97
Poplar	1,041		69,914	13,068.04	104.87		104.87
Spruce	698		11,094	2,073.64	44.38	18.79	63.17
Total Ontario Scale	5,084		221,881	41,473.10	768.38	496.59	1,264.97
Tree Length Material							
Balsam	3,261		135,142	25,260.19	540.57		540.57
Pine, jack	228,655		12,604,407	2,355,963.93	50,417.62		50.417.62
Pine, red	313		33,862	6,329.35	169.31	76.19	245.50
Pine, white	119		29,415	5,498.13	147.08	66.18	213.26
Spruce	224,928		8,515,016	1,591,591.78	34,060.06	12,772.52	46,832.58
Total Tree Length Material	457,276		21,317,842	3,984,643.38	85,334.64	12,914.89	98,249.53
Total Ontario Scale	462,360		21,539,723	4,026,116.48	86,103.02	13,411.48	99,514.50
ubic Foot Measure							
Sawlogs							
Balsam	321		1,383.97	1,383.97	22.84	18.67	41.51
Birch, white	4,390		9,328.75	9,328.75	55.97	53.78	109.75
Cedar	469		3,013.53	3,013.53	81.03	81.02	162.05
Pine, jack	67,734		155,408.77	155,408.77	7,465.00	2,090.18	9.555.18
Pine, red	2,501		25,092.51	25,092.51	828.06	1,170.05	1,998.11
Pine, white	851		11,575.45	11,575.45	381.99	523.84	905.83
Poplar	6,498		36,625.06	36,625.06	219.75	12.94	232.69
Spruce	1,161		7,867.38	7,867.38	259.63	324.25	583.88
Total Sawlogs	83,925		250,295.42	250,295.42	9,314.27	4,274.73	13,589.00
Tree Length Material							
Pine, jack	15,373		135,818.17	135,818.17	3,191.73	1,561.91	4,753.64
Poplar	13,734		262,115.00	262,115.00	1.572.69	,,_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1,572.69
Spruce	1,599		9,546.03	9,546.03	315.02	95.46	410.48
Fotal Tree Length Material	30,706		407,479.20	407,479.20	5,079.44	1,657.37	6,736.81
							continued

continued

FORT FRANCES (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
Subic Foot Measure (continued)							
Boom Timber, Piling, Poles Boom and Dimension Timber					2.00	4.07	
Cedar	11 40		107.39 512.27	107.39 512.27	3.88 20.47	1.07 5.12	
Poles					422.24	21 50	1
Pine, jack	195		3,157.33	3,157.33	132.31 404.02	31.58 336.48	7
Pine, red	99		6,754.25	6,754.25	995.23	829.20	1,8
Pine, white	206		16,602.98 375.92	16,602.98 375.92	17.84	3.77	. /
Spruce	19		3/3.92	3/3.74	17.04		
Total Boom Timber, Piling, Poles	570		27,510.14	27.510.14	1.573.75	1,207.22	2,
Total Cubic Foot Measure	115,201		685,284.76	685,284.76	15,967.46	7,139.32	23
Cordage							
Pulpwood				466 220 00	2.720.60	667 77	3
Balsam		1,956.94		166,339.90	2,739.69 8.60	667.77- 1.72	
Birch, white		17.20		1,462.00 76.50	1.26	.99	
Cedar		.90		3,673,114.35	86,426.22	12,213.82	98
Pine, jack (export law)		43,213.11 (33,209.83)		(2,822,835.55)	00,120,22	16,605.98	16
Pine, jack (export levy)		20,103.91		1,708,832.35	10,052.01	5,673.20	15
Poplar		61,097.07		5,193,250.95	171,071.79	26,860.00	197
Spruce		(2,295.00)		(195,075.00)		2,295.00	2
Tamarack		.27		22.95	.38	.05	
Total Pulpwood		126,389.40		10,743,099.00	270,299.95	64,318.53	334
Fuelwood							
Hardwood		146.12		12,420.20	73.06	73.06	
Softwood		152.92		12,998.20	62.96	35.23	
Total Fuelwood		299.04		25,418.40	136.02	108.29	
Total Cordage		126,688.44		10,768,517.40	270,435.97	64,426.82	334
Miscellaneous Posts — lin. ft.							
Cedar	14,526		106,523	21,304.60	1,065.23	576.17	
Tie Blocks — cu. ft.	,		,				
Pine, jack	16,371		66,430.68	66,430.68	1,561.12	940.32	
Christmas Trees	115,072		5,753.60	5,753.60	5,753.60		

continue

ORT FRANCES (continued)

Species	Pieces	Cords	° Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
Total Miscellaneous Total Ontario Scale Total Cubic Foot Measure Total Cordage	145,969 462,360 115,201	126,688.44	21,539,723 685,284.76	93,488.88 4,026,116.48 685,284.76 10,768,517.40	8,379.95 86,103.02 15,967.46 270,435.97	1,516.49 13,411.48 7,139.32 64,426.82	9,896.44 99,514.50 23,106.78 334,862.79
Grand Total	723,530	126,688.44		15,573,407.52	380,886.40	86,494.11	467,380.51
Number of permits issued and includ	ed in above –	– 192	Conversion f	actor: 1 cubic foot 1 cord	= 5.35 board feet = 85 cubic feet.		\$65,527.10



Preparation of site for forest tree planting.

GERALDTON

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
Cubic Foot Measure Sawlogs							
	41		158.95	158.95	2.62	.56	
Balsam Pine, jack	15,091		309,306.31	309,306.31	7,277.77	390.10	7,66
Spruce	71,669		1,654,350.41	1,654,350.41	54,496.26	1,999.03	56,49
Total Sawlogs	86,801		1,963,815.67	1,963,815.67	61,776.65	2,389.69	64,1
Tree Length Material							
Balsam	121		910.66	910.66	14.99	.54	Í
Pine, jack	24,151		343,989.40	343,989.40	8,093.88	404.70	8,49
Spruce	29,826		418,379.94	418,379.94	13,781.94	522.76	14,3
Total Tree Length Material	54,098		763,280.00	763,280.00	21,890.81	928.00	22,8
Boom Timber, Piling, Poles Boom and Dimension Timber							
	0.™0		2 754 50	2.754.50	00.42	5.54	
Pine, jack	353 897		3,754.58 9,573.09	3,754.58 9,573.09	90.43 355.54	36.16	3
Piling							
Pine, jack	76		2,154.75	2,154.75	50.70	2.54	
Spruce	72		2,318.80	2,318.80	76.38	6.82	
Poles							
Cedar	5		125.00	125.00	3.75		
Pine, jack	1,742		36,635.85	36,635.85	862.02	43.11	9
Spruce	29		146.20	146.20	4.82	.86	
Total Boom Timber, Piling, Poles	3,174		54,708.27	54,708.27	1,443.64	95.03	1,5.
Total Cubic Foot Measure	144,073		2,781,803.94	2,781,803.94	85,111.10	3,412.72	88,5
Cordage							
Pulpwood							
Balsam		28,786.90		2,446,886.50	40,301.53	8,551.37	48,8
Birch, white		4,251.32		361,362.20	2,125.67	45.55	2,1
Pine, jack		153,156.41		13,018,294.85	305,957.29	15,455.61	321,4
Poplar		34,926.74		2,968,772.90	17,463.38	112 //2 01	17,4
Spruce Tamarack		418,253.84 22.19		35,551,576.40 1,886.15	1,171,032.91 31.07	112,443.81	1,283,4
Total Pulpwood		639,397.40		54,348,779.00	1,536,911.85	136,450.79	1,673,30
		,			,		

continue

ERALDTON (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
rdage (continued) uelwood							
oftwood		589.00		50,065.00	294.50	2.00	296.50
otal Fuelwood		589.00		50,065.00	294.50	2.00	296.50
olts							
irch, white oplar		169.86 19,489.17		14,438.10 1,656,579.45	84.93 9,774.40	42.47 4,157.25	127.40 13,931.65
otal Bolts		19,659.03		1,671,017.55	9,859.33	4,199.72	14,059.05
otal Cordage		659,645.43		56,069,861.55	1,547,065.68	140,652.51	1,687,718.19
cellaneous Posts — lin. ft.							
Cedar Vine, jack	356 30		2,697 240	539.40 48.00	26.97 2.40	18.44 2.60	45.41 5.00
Aining Timber — cu. ft.	F00					2,00	3.00
pruce	508 650		651.95 325.00	651.95 325.00	21.48 32.50	1.92 17.50	23.40 50.00
otal Miscellaneousotal Cubic Foot Measureotal Cordage	1,544 144,073	659,645.43	2,781,803.94	1,564.35 2,781,803.94 56,069,861.55	83.35 85,111.10 1,547,065.68	40.46 3,412.72 140,652.51	123.81 88,523.82 1,687,718.19
Grand Total	145,617	659,645.43		58,853,229.84	1,632,260.13	144,105.69	1,776,365.82
Number of permits issued and included	in above 84	Conversi	on factor: 1 cubic fo 1 cord	pot = 5.35 board fee = 85 cubic fee			\$ 1,440.54

OGAMA (continued)

MMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
rd Foot Measure ntario Scale alsam	25		625	116.82	2.50	2.50	5.00
							continued

GOGAMA (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus .	Stum Va \$
ard Foot Measure (continued)							
Birch, white	63		3,074	574.58	4.61	1.54	
Birch, yellow	1,234		81,712	15,273.27	408.56	408.56	
Cedar	14		105	19.63	.32	.52	
Pine, jack	37,215		1,023,439	191,297.01	4,093.76	14.58	4
Pine, red	3,618		381,206	71,253.46	1,906.04	2,032.12	3
ine, white	26,172		3,540,170	661,714.02	17,700.87	17,062.57	34
oplar	1,330		73,097	13,662.99	109.65	39.04	
Spruce	11,877		456,098	85,251.96	1,824.40	1,368.30	3
Fotal Ontario Scale	81,548		5,559,526	1,039,163.74	26,050.71	20,929.73	46
Tree Length Material							
Pine, jack	75,319		5,071,621	947,966.54	20,286.49		20
pruce	27,622		1,362,953	254,757.57	5,451,82	4,088.86	
otal Tree Length Material	102,941		6,434,574	1,202,724.11	25,738.31	4,088.86	2
otal Board Foot Measure	184,489		11,994,100	2,241,887.85	51,789.02	25,018.59	7
bic Foot Measure							
Sawlogs							
Balsam	268		1,602.62	1,602.62	26.44		
Birch, white	196		1,701.35	1,701.35	10.21	6.11	
ine, jack	215,937		1,250,520.70	1,250,520.70	29,387.25	2,632.22	3
Pine, white	78		1,941.90	1,941.90	64.09	40.57	
Oplar	7,983		59,375.93	59,375.93	356.25	202.53	
pruce	67,202		439,137.57	439,137.57	14,491.53	871.05	1
otal Sawlogs	291,664		1,754,280.07	1,754,280.07	44,335.77	3,752.48	4
ree Length Material							
Pine, jack	9,763		95,922.00	95,922.00	2,254.17	1,131.88	
pruce	1,690		9,424.00	9,424.00	310.99	65.97	
otal Tree Length Material	11,453		105,346.00	105,346.00	2,565.16	1,197.85	
oom Timber, Piling, Poles oles							
Pine, jack	3,830		71,662.79	71,662.79	3,224.93	717.94	
THE, Jack servers servers servers servers			,	,	- /		
Pine, red	1,851		58,804.50	58,804.50	3,267.11	588.05	

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continue

OGAMA (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
c Foot Measure (continued)							
otal Boom Timber, Piling, Poles	5,698		131,104.63	131,104.63	6,528.80	1,312.37	7,841.17
otal Cubic Foot Measure	308,815		1,990,730.70	1,990,730.70	53,429.73	6,262.70	59,692.43
lage Ipwood							
Isam		46.48		3,950.80	65.07	2.36	67.43
rch, white		55.58		4,724.30	27.79	5.56	33.35
ne, jack		1,864.76		158,504.60	3,729.52	9.89	3,739.41
plar		17.60		1,496.00	8.80	1.76	10.56
ruce		39,351.58		3,344,884.30	110,184.42	5,732.36	115,916.78
otal Pulpwood		41,336.00		3,513,560.00	114,015.60	5,751.93	119,767.53
elwood							
ardwood		61.00		5,185.00	30.50	30.50	61.00
ftwood		39.00		3,315.00	19.50	. 19.50	39.00
otal Fuelwood		100.00		8,500.00	50.00	50.00	100.00
olts							
rch, white		31.25		2,656.25	15.63	15.63	31.26
plar		223.58		19,004.30	111.79	111.79	223.58
otal Bolts		254.83		21,660.55	127.42	127.42	254.84
otal Cordage		41,690.83		3,543,720.55	114,193.02	5,929.35	120,122.37
rellaneous osts — lin, ft.							
edar	114		912	182.40	9.12	9.12	18.24
otal Miscellaneous	114		912	182.40	9.12	9.12	18.24
otal Ontario Scale	184,489		11,994,100	2,241,887.85	51,789.02	25,018.59	76,807.61
otal Cubic Foot Measure	308,815		1,990,730.70	1,990,730.70	53,429.73	6,262.70	59,692.43
otal Cordage		41,690.83		3,543,720.55	114,193.02	5,929.35	120,122.37
rand Total	493,418	41,690.83		7,776,521.50	219,420.89	37,219.76	256,640.65
Number of permits issued and includ Conversion factor: 1 cubic foot = 5 1 cord = 85		23					\$ 3,058.89

KAPUSKASING

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stum Val
Cubic Foot Measure Sawlogs							
Balsam	76,580		320,263.04	320,263.04	5,279.55	3,448.95	8
Birch, white	29,965		155,906.60	155,906.60	917.37	1,827.58	2
Cedar	60		528.70	528.70	8.70		
Pine, jack	149,353		777,364.05	777,364.05	18,279.33	7,535.56	25
Poplar	125,006		876,624.03	876,624.03	5,223.70	8,180.80	13
Spruce	2,083,144		7,992,635.99	7,992,635.99	263,464.07	50,779.23	314
Tamarack	314		2,151.53	2,151.53	35.49	48.95	
Total Sawlogs	2,464,422		10,125,473.94	10,125,473.94	293,208.21	71,821.07	365
Tree Length Material							
Balsam	30,117		143,529.61	143,529.61	2,366.74	2,069.26	4
Birch, white	21		513.22	513.22	3.08	3.08	
Pine, jack	94,264		1,273,728.29	1,273,728.29	29,932.61	23,563.97	53
Spruce	950,473		5,930,062.61	5,930,062.61	195,649.01	39,141.87	234
Total Tree Length Material	1,074,875		7,347,833.73	7,347,833.73	227,951.44	64,778.18	292
Boom Timber, Piling, Poles Boom and Dimension Timber							
Cedar	3		59.40	59.40	3.56		
Spruce	597		14,447.44	14,447.44	770.88		
Total Boom Timber, Piling, Poles	600		14,506.84	14,506.84	774.44		
Total Cubic Foot Measure	3,539,897		17,487,814.51	17,487,814.51	521,934.09	136,599.25	658
Cordage Pulpwood							_
Balsam		11,803.02		1,003,256.70	16,524.23	4,777.90	21
Balsam (export levy)	1	(213.62)		(18,157.70)	, , ,	213.62	2
Pine, jack		870.77		74,015.45	1,741.54	90.53	1
Poplar		4,941.43		420,021.55	2,470.72	877.71	3
Spruce		321,475.97		27,325,457.45	900,132.71	151,526.69	1,05
Spruce (export levy)		(30,709.71)		(2,610,325.35)		30,709.71	30
Tamarack		.80		68.00	1.12	1.60	
		339,091.99		28,822,819.15	920,870.32	188,197.76	1,109
Total Pulpwood							
Total Pulpwood							

continue

PUSKASING (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
elwood (continued) ftwood		682.52		58,014.20	341.26		341.26
tal Fuelwood		777.20		66,062.00	388.60		388.60
Its rch, white		19.54 2,771.40		1,660.90 235,569.00	9.78 1,385.71	13.88 2,030.66	23.66 3,416.37
tal Bolts		2,790.94		237,229.90	1,395.49	2,044.54	3,440.03
tal Cordage		342,660.13		29,126,111.05	922,654.41	190,242.30	1,112,896.71
ellaneous sts — lin. ft. dar	1,466		11,040	2,208.00	110.40		110.40
tal Miscellaneoustal Cubic Foot Measuretal Cordage	1,466 3,539,897	342,660.13	11,040 17,487,814.51	2,208.00 17,487,814.51 29,126,111.05	110.40 521,934.09 922,654.41	136,599.25 190,242.30	110.40 658,533.34 1,112,896.71
and Total	3,541,363	342,660.13		46,616,133.56	1,444,698.90	326,841.55	1,771,540.45
Number of permits issued and incl	uded in above	— 348	Conversion fa	ctor: 1 cubic foot = 1 cord = 1		\$	149,038.47

KEMPTVILLE

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
oard Foot Measure							
Ontario Scale							
Ash	176		6,989	1,306.36	34.95	25.26	(
Balsam	71		1,357	253.64	5.43	6.28	
Basswood	2,589		130,053	24,308.97	650.28	629.95	1,28
Beech	767		31,596	5,905.79	47.40	124.68	17
Birch, white	451		15,930	2,977.57	23.90	34.81	ţ
Birch, yellow	102		5,716	1,068.41	28.60	45.75	7
Butternut	108		7,602	1,420.93	11.41	17.24	2
Cedar	102		1,576	294.58	4.72	1.26	
Elm	277		20,276	3,789.91	101.39	32.46	13
Hemlock	657		23,600	6,280.37	100.80	69.18	16
Maple	2,163		133,322	24,920.00	666.62	516.36	1,18
Oak	3,168		176,830	33,052.34	884.17	496.06	1,38
Pine, red	38		1,332	248.97	6.67	8.12	
Pine, white	4,443		220,737	41,259.25	1,103.58	1,400.02	2,50
Poplar	1,287		62,583	11,697.76	93.89	145.87	23
Spruce	504		30,123	5,630.47	120.49	143.63	26
Total Ontario Scale	16,903		879,622	164,415.32	3,884.30	3,696.93	7,58
Cordage							
Pulpwood							
Balsam		10.00		850.00	14.00	1.00	1
Birch, white		30.00		2,550.00	15.00	1.00	
Elm		3.75		318.75	1.88	.93	
Maple		55.79		4,742.15	27.90	1,003.78	1,03
Pine, white		261.52		22,229.20	366.13	1,000110	36
Poplar		19.34		1,643.90	9.67	4.83	1
Total Pulpwood		290.40		22.224.00	424 50	1.010.54	4 4
		380.40		32,334.00	434.58	1,010.54	1,44
Fuelwood							
Hardwood		11.54		980.90	5.77	12.31	1
Total Fuelwood		11.54		980.90	5.77	12.31	1
Total Cordage		391.94		33,314.90	440.35	1,022.85	1,46
1iscellaneous Posts — lin. ft.							
Ash	9		135	27.00	1,35	.90	
Beech	69		1,035	207.00	10.35	6.90	1
Birch, white	15		225	45.00	2.25	1.50	

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MPTVILLE (continued)

NORTH

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
osts — lin. ft. (continued)							
rch, yellowemlock	2		30	6.00	.30	.20	.50
aple	264 76		3,960 1,140	792.00 228.00	39.60 11.40	26.40 7.60	66.00 19.00
ak	44		660	132.00	6.60	4.40	11.00
otal Miscellaneous	479		7,185	1,437.00	71.85	47.90	119.75
otal Ontario Scale	16,903	204.04	879,622	164,415.32	3,884.30	3,696.93	7,581.23
otal Cordage		391.94		33,314.90	440.35	1,022.85	1,463.20
rand Total	17,382	391.94		199,167.22	4,396.50	4,767.68	9,164.18
Number of permits issued and includ	ed in above — 10	Conv	version factor: 1 co	abic foot = 5.35 board $abic foot = 85 cubic$			\$ 4,586.75

MARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
Foot Measure							
wlogs							
ne, jack	67,131 4,122 11,287 1,078 21,401		358,103.10 31,081.50 117,544.04 6,755.83 125,232.87	358,103.10 31,081.50 117,544.04 6,755.83 125,232.87	8,415.43 1,025.68 3,878.96 40.54 4,132.70	5,324.57 1,395.57 5,459.95 18.00 1,869.23	13,740.0 2,421.2 9,338.9 58.5 6,001.9
tal Sawlogs	105,019		638,717.34	638,717.34	17,493.31	14,067.32	31,560.6
om Timber, Piling, Poles om and Dimension Timber							
e, jack les	28		266.20	266.20	9.22	7.99	17.2
dar	170		1,195.43	1,195.43	47.82	6.87	54.6
e, jack	7,251		88,887.53	88,887.53	3,528.66	1,308.48	4,837.14
							continued

KENORA (continued)

Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
1,102		16,565.38	16,565.38	728.84	538.96	1,2
9		319.11	319.11	17.99		
1,173		25,738.72	25,738.72	1,413.74	214.23	1,6
9,733		132,972.37	132,972.37	5,746.27	2,082.91	7,8
114,752		771,689.71	771,689.71	23,239.58	16,150.23	39,3
	0.470.47		210 644 45	2 460 45	1 305 61	4.7
	/		,	,	,	5
			,		33.33	J
					18 674 65	422,7
	,			,	,	142,7
			,			,
			· · · · · · · · · · · · · · · · · · ·			1,6
	,		,			685,2
	217,542.82		18,491,139.70	600,361.90	76,630.09	003,2
	410,185.39		34,865,758.15	987,745.08	127,507.74	1,115,2
	181.66		15,441.10	90.83	90.83	1
	143.92		12,233.20	71.96	71.96	1
	325.58		27,674.30	162.79	162.79	3
	410,510.97		34,893,432.45	987,907.87	127,670.53	1,115,5
11,841		96,858	19,371.60	968.58	290.48	1,2
62		500	100.00	5.00		
200		100.00	100.00	20.00	30.00	
12,103			19,571.60	993.58	320.48	1,3
114,752		771,689.71	771,689.71	23,239.58	16,150.23	39,3
	410,510.97		34,893,432.45	987,907.87	127,670.53	1,115,5
404.055	410 510 07		35,684,693.76	1,012,141.03	144,141.24	1,156,2
126,855	410,510.97		33,004,033.70	1,012,141.03	177,171.27	.,,,,,,
	1,102 9 1,173 9,733 114,752 11,841 62 200 12,103	1,102 9 1,173 9,733 114,752 2,478.17 999.94 11.38 187,113.67 71.70 24.78 1,942.93 217,542.82 410,185.39 181.66 143.92 325.58 410,510.97	1,102	1,102	1,102	1,102 16,565,38 16,565,38 728,84 538,96 1,173 25,738,72 25,738,72 1,413,74 214,23 1,173 132,972,37 132,972,37 5,746,27 2,082,91 114,752 771,689,71 771,689,71 23,239,58 16,150,23 2,478,17 210,644,45 3,469,45 1,305,61 999,99 4 84,994,90 499,98 99,99 113,38 967,30 15,93 187,113,67 15,904,661,95 374,090,15 48,674,65 71,70 6,094,50 81,50 111,00 24,78 2,106,30 34,69 34,69 34,69 1,942,93 165,149,05 971,48 651,71 217,542,82 18,491,139,70 608,581,90 76,630,09 410,185,39 34,865,758,15 987,745,08 127,507,74 181,66 15,441,10 90,83 90,83 127,507,74 181,66 15,441,10 90,83 90,83 143,99 17,96 143,99 17,96 143,99 17,96 17,96 143,99 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 17,96 170,90 170,00 5,00 170,00 5,00 170,00 20,00 30,00 12,103 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 320,48 114,752 771,689,71 771,689,71 23,239,58 16,150,23

KE SIMCOE

MMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
rd Foot Measure Ontario Scale ine, white	1,276		78,128	14,603.36	390.64	781.28	1,171.92
otal Ontario Scale	1,276		78,128	14,603.36	390.64	781.28	1,171.92
dage uelwood lardwood		35.00		2,975.00	17.50	17.50	35.00
otal Fuelwood		35.00		2,975.00	17.50	17.50	35.00
otal Cordageotal Ontario Scale	1,276	35.00	78,128	2,975.00 14,603.36	17.50 390.64	17.50 781.28	35.00 1,171.92
rand Total	1,276	35.00		17,578.36	408.14	798.78	1,206.92
Number of permits issued and includ	ded in above — 7	Conversio	n factor: 1 cubic fo 1 cord	pot = 5.35 board feet = 85 cubic feet.			\$ 1,206.92



Bags of white pine cones at Fort William Forest Station awaiting shipment to Ontario Tree Seed Plant at Angus.

LINDSAY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
oard Foot Measure							
Ontario Scale							
Ash	308		15,416	2.881.50	77.09	45.50	
Balsam	415		13,803	2,580.00	55.22	66.40	
Basswood	3,343		209,113	39,086.54	1,045.58	1,382.43	2,4
Beech	6,664		432,091	80,764.67	648.15	997.15	1,6
Birch, white	433		12.650	2,364.49	18.98	78.07	,
Birch, yellow	11,828		824.735	154,156.08	4,123.70	6,608.31	10.
Cedar	153		9,623	1,798.69	28.87	5.09	.0,
	516		31,822	5,948.04	159.11	35.15	
Cherry	1,152		102,391	19,138.50	511.96	296.96	
Elm	9,414		672,822	125,761.12	2,018.46	1,495,41	3,
Hemlock	,		3,439,253	642,851.03	17,196.29	16.549.04	33,
Maple	45,788		85,553	15,991,21	427.77	418.56	33,
Oak	2,183		15,172	2,835,89	75.87	100.23	
Pine, red	424		,	, ,	1,235.17		2.
Pine, white	3,976		247,033	46,174.39	· · · · · · · · · · · · · · · · · · ·	1,564.13	2,
Poplar	931		51,274	9,583.93	76.91	228.34	1
Spruce	2,982		199,651	37,317.94	798.60	948.19	1,:
Tamarack	40		545	101.87	1.64	2.73	
Total Ontario Scale	90,550		6,362,947	1,189,335.89	28,499.37	30,821.69	59,3
Cubic Foot Measure							
Boom Timber, Piling, Poles Boom and Dimension Timber							
Beech	92		2,492.28	2,492.28	133.81	24.93	
Cedar	18		169.86	169.86	6.39	5.09	
Maple	96		2,606.85	2,606.85	139.87	26.07	
Spruce	4		109.85	109.85	5.97	1.10	
opiace ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Total Boom Timber, Piling Poles	210		5,378.84	5,378.84	286.04	57.19	
Total Cubic Foot Measure	210		5,378.84	5,378.84	286.04	57.19	
Cordage							
Pulpwood							
Balsam		9.69		823.65	13.57	5.81	
Birch, white		19.82		1,684,70	9.91	2.48	
Poplar		85.69		7,283.65	42.85	10.71	
Topiar		05.05		7,203.03	42.03	10.71	

continu

NDSAY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
Cordage (continued) uel Wood							
ardwood		159.03		13,517.55	79.52	39.76	119.28
otal Fuelwood		159.03		13,517.55	79.52	39.76	119.28
otal Cordage		274.23		23,309.55	145.85	58.76	204.61
Miscellaneous Mining Timber — cu. ft. oplar	23		40.62	40.62	20.31	10.16	30.47
otal Miscellaneous otal Ontario Scale otal Cubic Foot Measure otal Cordage	23 90,550 210	274.23	40.62 6,362,947 5,378.84	40.62 1,189,335.89 5,378.84 23,309.55	20.31 28,499.37 286.04 145.85	10.16 30,821.69 57.19 58.76	30.47 59,321.06 343.23 204.61
rand Total	90,783	274.23		1,218,064.90	28,951.57	30,947.80	59,899.37
Number of permits issued and include Conversion factor: 1 cubic foot = 5. 1 cord = 85	35 board feet						\$ 17,345.62

ORTH BAY

MMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

			,	The state of the s	3131, 1307		
Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$	
435		28,394	5.307.29	142.01	64.20	206.20	
358		9,885	,			206.30 92.68	
3,901		203,072	37,957.38			1,863.31	
182		11,396	2,130.09	17.07		41.87	
27,962		1,359,189	254,054.02	2,046,56		12,641.20	
96,709		6,102,500	1,140,654.21	30,503.35	,	100,372.70	
403		19,422	3,630.28	59.94	,	126.93	
262		16,401	3,065.61	82.01		137.64	
1,371		136,428	25,500.56	682.69	479.32	1,162.01	
	435 358 3,901 182 27,962 96,709 403 262	435 358 3,901 182 27,962 96,709 403 262	435 28,394 358 9,885 3,901 203,072 182 11,396 27,962 1,359,189 96,709 6,102,500 403 19,422 262 16,401	Pieces Cords Feet Equivalent in Cu. ft. 435 28,394 358 9,885 1,847.66 3,901 203,072 37,957.38 182 11,396 2,130.09 27,962 1,359,189 254,054.02 96,709 6,102,500 1,140,654.21 403 19,422 3,630.28 262 16,401 3,065.61	Pieces Cords Feet Equivalent in Cu. ft. Dues \$ 435 28,394 5,307.29 142.01 358 9,885 1,847.66 39.54 3,901 203,072 37,957.38 1,015.37 182 11,396 2,130.09 17.07 27,962 1,359,189 254,054.02 2,046.56 96,709 6,102,500 1,140,654.21 30,503.35 403 19,422 3,630.28 59.94 262 16,401 3,065.61 82.01	435 28,394 5,307.29 142.01 64.29 358 9,885 1,847.66 39.54 53.14 3,901 203,072 37,957.38 1,015.37 847.94 182 11,396 2,130.09 17.07 24.80 27,962 1,359,189 254,054.02 2,046.56 10,594.64 96,709 6,102,500 1,140,654.21 30,503.35 69,869.35 403 19,422 3,630.28 59.94 66.99 262 16,401 3,065.61 82.01 55.63	

continued

NORTH BAY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stu V
Board Foot Measure, Ontario Scale (continued	d)						
Hemlock	2,883		223,791	41,830.09	671.39	811.61	
Maple	53,130		3,878,205	724,898.13	19,441.09	12,286.28	3
Oak	2,127		128,611	24,039.44	643.09	530.27	
Pine, jack	55,138		1,237,411	231,291.78	4,949.64	7,313.68	•
Pine, red	201,028		14,778,408	2,762,319.25	73,892.19	69,112.07	1.
Pine, white	363,503		34,854,663	6,514,890.28	174,273.35	209,068.98	3
Poplar	4,741		306,315	57,255.14	459.46	659.04	
Spruce	35,679		1,918,066	358,517.01	7,672.84	9,203.25	
Total Ontario Scale	849,812		65,212,157	12,189,188.22	316,591.59	391,041.28	7
bic Foot Measure							
Boom Timber, Piling, Poles							
Boom and Dimension Timber							
			F4 004 0F	E4 024 0E	2 (01 0 (1 527 05	
Pine, red	2,190		51,824.85	51,824.85	2,681.06	1,537.05	
Pine, white	30		928.90	928.90	52.00	27.87	
pruce	22,700		37,919.05	37,919.05	1,351.53	1,138.30	
Piling							
	59		1,289.98	1,289.98	60.54	38.70	
Pine, red	12		556.62	556.62	33.40	16.70	
pruce	12		330,02	330.02	33.40	10.70	
Poles							
Balsam	71		126.99	126.99	3.81	2.54	
Cedar	252		2,057.20	2,057.20	67.98	41.02	
łemlock	25		399.70	399.70	16.12	11.99	
ine, jack	4,679		9,183.54	9,183.54	328.00	275.82	
line, red	165		10,362.08	10.362.08	616.91	310.86	
pruce	241		9,975.32	9,975.32	581.98	299.26	
amarack	185		356.83	356.83	12.21	2.06	
						0.500.45	
otal Boom Timber, Piling, Poles	30,609		124,981.06	124,981.06	5,805.54	3,702.17	
Total Cubic Foot Measure	30,609		124,981.06	124,981.06	5,805.54	3,702.17	
rdage							
Pulpwood							
Ash		163.69		13,913.65	81.84	58.39	
Balsam		1,526.74		129,772.90	2,137.43	258.58	
Basswood		15.97		1,357.45	7.99	7.34	
Beech		47.93		4,074.05	23.97		
Birch, white		4,951.39		420,868.15	2,476.27	1,949.89	
Birch, yellow		.25		21.25	.13	.06	

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ORTH BAY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
dage							
ulpwood (continued)							
edar		.26		22.10	.36	.03	.3
erry		.79		67.15	.40	.20	.6
n		29.47		2,504.95	14.74	11.04	25.7
emlock		504.98		42,923.30	706.95	52.11	759.0
aple		650.28		55,273.80	325.13	111.31	436.4
ak		133.42		11,340.70	66.71	84.91	151.6
ne, jack		15,946.93		1,355,489.05	31,893.86	1,774.18	33,668.0
ne, red		1,829.09		155,472.65	2,560.71	55.40	2,616.1
ne, white		6,364.26		540,962.10	8,910.33	569.68	9.480.0
plar		28,193.03		2,396,407.55	14,096.67	8,423.93	- /
plar (export levy)		(1,843.28)		(156,678.80)	14,030.07		22,520.6
ruce		6,659.55		566,061.75	10 (46 71	184.33	184.3
marack		1.74			18,646.71	1,975.10	20,621.8
		1.7 7		147.90	2.44	.17	2.6
tal Pulpwood		67,019.77		5,696,680.45	81,952.64	15,516.65	97,469.2
elwood							
rdwood		681.16		57,898.60	340.58	328.58	669.16
tal Fuelwood		681.16		57,898.60	340.58	328.58	669.16
tal Cordage		67,700.93		5,754,579.05	82,293.22	15,845.23	98.138.45
ellaneous							
sts — lin. ft.							
dar	64		510	102.00	5.10		5.1(
tal Miscellaneous	64		510	102.00	5.10		5.10
tal Ontario Scale	849,812		65,212,157	12,189,188.22	316,591.59	391,041.28	707,632.87
tal Cubic Foot Measure	30,609		124,981.06	124,981.06	5,805.54	,	
tal Cordage		67,700.93	121,001100	5,754,579.05	82,293.22	3,702.17 15,845.23	9,507.71 98,138.45
and Total	880,485	67,700.93		18,068,850.33	404,695.45	410,588.68	815,284.13
Number of permits issued and includ	ed in above —	235					¢ 00 255 70
Conversion factor: 1 cubic foot = 1 cord = 8	5.35 board feet						\$ 89,355.79

PARRY SOUND

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

D.						0.
Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
1,201		84,692	15,830.28	423.50	325.52	7.
61		1,681	. ,			1
5,505		357,174				4,0
2,827		/ " "		,	,	4,0
1,840		,	/			54
76,391		,				_
153		, ,	, , , , , , , , , , , , , , , , , , , ,		,	135,7
			· · · · · · · · · · · · · · · · · · ·			4
		,	/			48
,		•	· ·	/	,	2,9
,		,	,	'	2,505.04	5,10
,			' '		75,043.40	134,50
		,	14,320.00	383.09	390.77	77
		,	4,727.85	126.47	252.94	37
		575,741	107,615.14	2,878.76	5,648.17	8,52
441		27,223	5,088.41	40.83	92.10	13
7,618		496,903	92,879.07	1,987.64	2,643.76	4,63
268,806		21,706,583	4,057,305.24	105,028.30	194,649.68	299,67
519		1,578.80	1,578.80	37.10	33.94	
170		984.80	984.80			
306		2,565.96	2,565.96	84.68	141.13	2
995		5,129.56	5,129.56	154.28	221.36	37
40		412.00	142.00	1.00		
				6.80	9.68	
		·	4,310.05	131.78	53.02	1.
			423.83	2.54	14.41	
			132.60	3.11	4.85	
		3,475.47	3,475.47	118.66	158.55	2
			3,963.74	130.80	185.30	3
2,680		21,889.13	21,889.13	748.83	565.51	1,3
4,529		34,606.82	34,606.82	1,142.52	992.32	2,1
5,524		39,736.38	39,736.38	1,296.80	1,213.68	2,5
	1,201 61 5,505 2,827 1,840 76,391 153 957 3,452 10,391 148,608 856 726 7,779 441 7,618 268,806 519 170 306 995 40 358 19 52 896 484 2,680 4,529	1,201 61 5,505 2,827 1,840 76,391 153 957 3,452 10,391 148,608 856 726 7,779 441 7,618 268,806 519 170 306 995	1,201 84,692 61 1,681 5,505 357,174 2,827 224,911 1,840 109,267 76,391 6,544,109 153 5,626 957 59,352 3,452 360,143 10,391 865,140 148,608 11,892,715 856 76,612 726 25,294 7,779 575,741 441 27,223 7,618 496,903 268,806 21,706,583 519 1,578.80 995 5,129.56 40 412.00 358 4,310.05 19 423.83 52 132.60 896 3,475.47 484 3,963.74 2,680 21,889.13 4,529 34,606.82	1,201 84,692 15,830,28 61 1,681 314,21 5,505 357,174 66,761,50 2,827 224,911 42,039,44 1,840 109,267 20,423,74 76,391 6,544,109 1,223,197,94 153 5,626 1,051,59 957 59,352 11,093,83 3,452 360,143 67,316,45 10,391 865,140 161,708,41 148,608 11,892,715 2,222,937,38 856 76,612 14,320,00 726 25,294 4,727.85 7,779 575,741 107,615,14 441 27,223 5,088,41 7,618 496,903 92,879,07 268,806 21,706,583 4,057,305,24 519 1,578,80 984,80 306 2,565,96 2,565,96 995 5,129,56 5,129,56	1,201 84,692 15,830,28 423,50 61 1,681 314,21 6.72 5,505 357,174 66,761,50 1,785,89 2,827 224,911 42,039,44 337,39 1,840 109,267 20,423,74 163,89 76,391 6,544,109 1,223,197,94 32,720,61 153 5,626 1,051,59 16,88 957 59,352 11,093,83 296,79 3,452 360,143 67,316,45 1,800,78 10,391 865,140 161,708,41 2,595,42 148,608 11,892,715 2,222,937,38 59,463,64 856 76,612 14,320,00 383,09 726 25,294 4,727,85 126,47 7,779 575,741 107,615,14 2,878,76 441 27,223 5,088,41 40,83 7,618 496,903 92,879,07 1,987,64 268,806 21,706,583 4,057,305,24 105,028,30 519 1,578,80 1,578,80 37,10 306 2,565,96 2,565,96 84,68 995 5,129,56 5,129,56 154,28	1,201 84,692 15,830,28 423,50 325,52 61 1,681 314,21 6,72 7,72 5,505 357,174 66,761,50 1,785,89 2,297,48 1,840 109,267 20,423,74 163,89 383,74 76,391 6,544,109 1,223,197,94 32,720,61 103,070,15 153 5,626 1,051,59 16,88 6,02 957 59,352 11,093,83 296,79 186,53 3,452 360,143 67,316,45 1,800,78 1,167,89 10,391 865,140 161,708,41 2,595,42 2,505,04 148,608 11,892,715 2,222,937,38 59,463,64 75,043,40 856 76,612 14,320,00 383,09 390,77 726 25,294 4,727,85 126,47 252,94 7,779 575,741 107,615,14 2,878,76 5,648,17 4,41 2,723 5,088,41 40,83 92,10 7,618 496,903 92,879,07 1,987,64 2,643,76 268,806 21,706,583 4,057,305,24 105,028,30 194,649,68

continued

ARRY SOUND (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
dage							
ulpwood							
alsam		351.83		29,905.55	492.56	387.02	879.58
irch, white		82.61		7,021.85	41.31	41.30	82.6
ne, red		60.09		5,107.65	84.13	306.46	390.59
ine, white		4.64		394.40	6.50	5.10	11.60
oplar		760.60		64,651.00	380.30	380.30	760.60
oruce		363.24		30,875.40	1,017.07	273.02	1,290.09
amarack		14.14		1,201.90	19.80	1.41	21.21
otal Pulpwood		1,637.15		139,157.75	2,041.67	1,394.61	3,436.28
relwood							,
ardwood		782.65		66 505 05			
		702.03		66,525.25	782.65		782.65
otal Fuelwood		782.65		66,525.25	782.65		782.65
otal Cordage		2,419.80		205,683.00	2,824.32	1,394.61	4,218.93
cellaneous							
osts—lin. ft.							
edar	232		1,856	371.20	10.50		40 54
oker Poles—cds.	232		1,0.70	37 1.20	18.56		18.56
ardwood		1,835.35		156,004.75	1,371.91	231.72	1,603.63
otal Miscellaneous	232	1,835.35	1,856	156,375.95	1,390.47	231.72	1 (22 10
tal Ontario Scale	268,806	.,	21,706,583	4,057,305.24	105,028.30	194,649.68	1,622.19
otal Cubic Foot Measure	5,524		39,736.38	39,736.38	1,296.80		299,677.98
otal Cordage	0,02.	2,419.80	55,750.50	205,683.00	2,824.32	1,213.68	2,510.48
				203,003.00	2,024.32	1,394.61	4,218.93
and Total	274,562	4,255.15		4,459,100.57	110,539.89	197,489.69	308,029.58
Number of permits issued and include	ed in above —	189					\$ 31,030,84
Conversion factor: 1 cubic foot'= 5.	35 board feet						, = ,,== 3.0
1 cord = 85							

PEMBROKE

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Valu \$
oard Foot Measure							
Ontario Scale							
Ash	881		70,624	13,200.75	353.15	157.93	5
Balsam	1,324		28,721	5,368.41	114.88	98.30	2
Basswood	4,943		325,959	60,926.92	1,629.85	1,321.71	2,9
Beech	2,789		211,541	39,540.37	317.32	431.49	· ,
Birch, white	24,163		1,224,397	228,859.25	1,836.61	2,810.90	4,
Birch, yellow	115,254		10,032,444	1,875,223.18	50,162.28	83,529.56	133,
Cedar	393		14,860	2,777.57	44.58	13.55	.33/
Cherry	262		15,682	2,931.21	78.43	18.48	
Elm	1,750		207,429	38,771.78	1,037.19	323.13	1,
Hemlock	130,311		10,159,964	1,899,058.69	30,479.88	12,900.08	43,
	162,788		13,269,707	2,480,319.07	66,348.61	19,295.23	85,
Maple	,		' '	, ,	,	1,147.22	3,
Oak	7,958		435,025	81,313.08	2,175.16	/	,
Pine, jack	26,472		945,243	176,680.93	3,780.98	5,491.81	9,
Pine, red	133,392		6,913,349	1,292,214.77	34,566.80	48,747.42	83,
Pine, white	287,516		20,243,243	3,783,783.74	101,216.32	154,440.83	255,
Poplar	100,642		5,064,485	946,632.71	7,596.75	6,071.98	13,
Spruce	40,094		2,442,078	456,463.18	9,768.31	11,875.29	21,
Tamarack	25		641	119.81	1.92	1.93	
Total Ontario Scale	1,040,957		71,605,392	13,384,185.42	311,509.02	348,676.84	660,7
ubic Foot Measure							
Sawlogs							
Sawlogs	41		330.02	330.02	7.76	35.15	
	41 1,582		330.02 13,891.17	330.02 13,891.17	7.76 458.41	35.15 1,347.44	1,
Sawlogs Pine, jack							,
Sawlogs Pine, jack Pine, red Total Sawlogs	1,582		13,891.17	13,891.17	458.41	1,347.44	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles	1,582		13,891.17	13,891.17	458.41	1,347.44	,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber	1,582 1,623		13,891.17 14,221.19	13,891.17 14,221.19	458.41 466.17	1,347.44 1,382.59	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock	1,582 1,623 677		13,891.17 14,221.19 17,920.22	13,891.17 14,221.19 17,920.22	458.41 466.17 947.90	1,347.44 1,382.59 11.51	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber	1,582 1,623		13,891.17 14,221.19	13,891.17 14,221.19	458.41 466.17	1,347.44 1,382.59	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock	1,582 1,623 677		13,891.17 14,221.19 17,920.22	13,891.17 14,221.19 17,920.22	458.41 466.17 947.90	1,347.44 1,382.59 11.51	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles	1,582 1,623 677 44		13,891.17 14,221.19 17,920.22 1,471.84	13,891.17 14,221.19 17,920.22 1,471.84	458.41 466.17 947.90 81.90	1,347.44 1,382.59 11.51 24.81	
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar	1,582 1,623 677 44		13,891.17 14,221.19 17,920.22 1,471.84 183.69	13,891.17 14,221.19 17,920.22 1,471.84 183.69	458.41 466.17 947.90 81.90 7.99	1,347.44 1,382.59 11.51 24.81 7.99	1,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar Pine, jack	1,582 1,623 677 44 10 9,483		13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37	13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37	458.41 466.17 947.90 81.90 7.99 5,404.46	1,347.44 1,382.59 11.51 24.81 7.99 10,602.19	16,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar Pine, jack Pine, red	1,582 1,623 677 44 10 9,483 31,055		13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69	13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69	458.41 466.17 947.90 81.90 7.99 5,404.46 30,362.30	1,347.44 1,382.59 11.51 24.81 7.99 10,602.19 62,009.16	16,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar Pine, jack Pine, red Pine, white	1,582 1,623 677 44 10 9,483 31,055 6		13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69 76.18	13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69 76.18	458.41 466.17 947.90 81.90 7.99 5,404.46 30,362.30 2.87	1,347.44 1,382.59 11.51 24.81 7.99 10,602.19 62,009.16 3.47	1,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar Pine, jack Pine, red Pine, white Spruce	1,582 1,623 677 44 10 9,483 31,055		13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69	13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69	458.41 466.17 947.90 81.90 7.99 5,404.46 30,362.30	1,347.44 1,382.59 11.51 24.81 7.99 10,602.19 62,009.16	1,
Sawlogs Pine, jack Pine, red Total Sawlogs Boom Timber, Piling, Poles Boom and Dimension Timber Hemlock Spruce Poles Cedar Pine, jack Pine, red Pine, white	1,582 1,623 677 44 10 9,483 31,055 6		13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69 76.18	13,891.17 14,221.19 17,920.22 1,471.84 183.69 131,874.37 634,589.69 76.18	458.41 466.17 947.90 81.90 7.99 5,404.46 30,362.30 2.87	1,347.44 1,382.59 11.51 24.81 7.99 10,602.19 62,009.16 3.47	1,, 1,, 16,, 92.,

continue

MBROKE (continued

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
dage							
ulpwood							
sh		26.78		2,276.30	13.39	6.28	19.67
alsam		1,282.93		109,049.05	1,796.10	332.31	2,128.41
asswood		76.16		6,473.60	38.08	18.67	56.75
eech		174.05		14,794.25	87.03	21.20	108.23
rch, white		1,686.10		143,318.50	843.06	498.26	1,341.32
rch, yellow		25.76		2,189.60	12.88	6.44	19.32
edar		.60		51.00	.84	0.17	.84
emlock		1,147.47		97,534.95	1,606.46	20.55	1,627.01
aple		423.96		36,036,60	211.99	69.22	281.21
ak		33.75		2,868.75	16.89	2.16	
ne, jack		1,993.24		169,425.40	3,986.48	23.71	19.05
ne, red		2,225.69		189,183.65	3,115.97		4,010.19
ne, white		2,050.64		174,304.40		5.15	3,121.12
pplar		11,456.94		973,839.90	2,870.89	59.59	2,930.48
pplar (export levy)		(1,458.40)		(123,964.00)	5,728.48	4,033.46	9,761.94
pruce		2,215.96		' '	(204 (0	145.84	145.84
ımarack		1.50		188,356.60	6,204.68	772.88	6,977.56
		1,50		127.50	2.10		2.10
otal Pulpwood		24,821.53		2,109.830.05	26,535.32	6,015.72	32,551.04
relwood							
ardwood		214.22		18,208.70	107.12	5.00	112.12
otal Fuelwood		214.22		18,208.70	107.12	5.00	112.12
olts							
pplar		3,491.18		296,750.30	349.12		349.12
otal Bolts		2 404 40					5-7-12
TOTAL DOTTS		3,491.18		296,750.30	349.12		349.12
otal Cordage		28,526.93		2,424,789.05	26,991.56	6,020.72	33,012.28
otal Ontario Scale 1	,040,957		71,605,392	13,384,185.42	311,509.02	348,676.84	660,185.86
otal Cubic Foot Measure	42,911		800,765.28	800,765.28	37,297.13	74,073.56	111,370.69
and Total	,083,868	28,526.93		16,609,739.75	375,797.71	428,771.12	804,568.83
N. J. C. S.						120,77 1112	_001,300.03
Number of permits issued and included Conversion factor: 1 cu. ft. = 5.35 box 1 cord = 85 cub	ard feet	160					\$ 93,675.09

PORT ARTHUR

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
Board Foot Measure							
Ontario Scale							
Pine, jack	2,469		59,998	11,214.58	239.99	202.16	44
Pine, red	1,998		101,906	19,047.85	509.53	509.53	1,01
Pine, white	8,956		595,934	111,389.53	2,979.68	2,979.68	5,95
Spruce	30		1,339	250.28	5.36	5.36	1
Total Ontario Scale	13,453		759,177	141,902.24	3,734.56	3,696.73	7,43
Cubic Foot Measure							
Sawlogs							
Balsam	1,459		10,917.62	10,917.62	179.97	31.45	. 21
Birch, white	434		3,382.42	3,382.42	20.26	19.28	3
Pine, jack	150,905		1,021,572.37	1,021,572.37	24,032.69	2,313.44	26,34
Pine, red	517		4,332.08	4,332.08	142.96	159.78	30
Pine, white	2,910		32,510.90	32,510.90	1,072.87	477.59	1,55
Poplar	76,978		451,199.86	451,199.86	2,656.82	3,648.15	6,30
Spruce	70,070		783,618.58	783,618.58	25,816.23	4,682.78	30,49
Total Sawlogs	303,273		2,307,533.83	2,307,533.83	53,921.80	11,332.47	65,25
Tree Length Material							
Balsam	75,050		587,376.53	587,376.53	9,674.50	1,749.77	11,42
Pine, jack	659,833		7,535,059.64	7,535,059.64	177,251.36	16,825.21	194,07
Pine, white	2		61.00	61.00	2.01	1.65	
Poplar	8,288		209,478.54	209,478.54	1,232.23		1,23
Spruce	1,409,249		10,094,663.43	10,094,663.43	332,574.53	37,764.61	370,33
Tamarack	677		3,366.26	3,366.26	55.54	33.66	8
Total Tree Length Material	2,153,099		18,430,005.40	18,430,005.40	520,790.17	56,374.90	577,16
Boom Timber, Piling, Poles							
Boom and Dimension Timber							
Pine, jack	526		11,337.30	11,337.30	266.76	13.34	28
Poplar	45		1,611.60	1,611.60	9.48	1.90	1
Spruce	294		10,830.93	10,830.93	367.02	38.81	40
Piling							
Pine, jack	453		2,837.70	2,837.70	87.68	56.72	14
Poplar	24		827.69	827.69	47.89		4
Spruce	93		2,597.07	2,597.07	135.83	25.98	16
Poles							
Pine, jack	13,817		197,930.40	197,930.40	8,060.15	2,188.15	10,24

continuec

ORT ARTHUR continued

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
otal Boom Timber, Piling, Poles	15,252		227,972.69	227,972.69	8,974.81	2,324.90	11,299.7
otal Cubic Foot Measure	2,471,624		20,965,511.92	20,965,511.92	583,686.78	70,032.27	- 653,719.0
dage ulpwood							
alsam rch, white edar ne, jack oplar oplar (export levy) oruce		28,528.25 1,427.78 82.71 73,546.85 3,924.83 (6,475.32) 353,690.44 685.02		2,424,901.25 121,361.30 7,030.35 6,251,482.25 333,610.55 (550,402.20) 30,063,687.40 58,226.70	39,871.78 713.91 115.79 147,093.70 1,962.43 987,536.55 959.04	7,073.74 366.34 49.63 10,679.74 1,785.13 647.54 119,444.66 70.20	46,945.5. 1,080.2. 165.4. 157,773.4. 3,747.5. 647.5. 1,106,981.2. 1,029.2.
otal Pulpwood		461,885.88		39,260,299.80	1,178,253.20	140,116.98	1,318,370.18
r <mark>elwood</mark> rftwood		313.00		26,605.00	156.50	159.50	316.00
otal Fuelwood		313.00		26,605.00	156.50	159.50	316.00
olts							
rch, white		261.98 10.413.10		22,268.30 885,113.50	131.00 5,206.57	87.90 4,251.22	218.90 9,457.79
otal Bolts		10,675.08		907,381.80	5,337.57	4,339.12	9,676.69
otal Cordage		472,873.96		40,194,286.60	1,183,747.27	144,615.60	1,328,362.87
ellaneous osts—lin. ft.							
edar,.	591		4,728	945.60	47.28		47.28
Miscellaneous otal Ontario Scale otal Cubic Foot Measure otal Cordage	591 13,453 2,471,624	472,873.96	4,728 759,177 20,965,511.92	945.60 141,902.24 20,965,511.92 40,194,286.60	47.28 3,734.56 583,686.78 1,183,747.27	3,696.73 70,032.27 144,615.60	47.28 7,431.29 653,719.05 1,328,362.87
rand Total	2,485,668	472,873.96		61,302,646.36	1,771,215.89	218,344.60	1,989,560.49
Number of permits issued in above —	- 192	Conversion fa	ctor: 1 cubic foot = 1 cord =	5.35 board feet 85 cubic feet.			\$ 43,223.84

SAULT STE. MARIE

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stump Value \$
oard Foot Measure							
Ontario Scale							
Ash	84		5,761	1,076.82	28.82	17.72	
Balsam	102		3,508	655.70	14.02	8.56	
Birch, white	21,584		1,191,212	222,656.45	1,786.81	6,438.47	8,2
Birch, yellow	196,033		14,919,239	2,788,642.80	74,596.24	148,750.35	223,3
Cedar	51		1,964	367.10	5.89	9.82	
Elm	1,963		184,074	34,406.36	920.39	1,032.06	1,9
	5,214		484,461	90,553.46	1,453.40	1,385.28	2,8
Hemlock	122,330		8,501,113	1,588,993.08	42,505.62	26,329.93	68,8
Maple	,		286,391	53,531.03	1,431.98	1,173.34	2,6
Oak	3,392			/	25,136.92	14,818.16	39,9
Pine, red	57,984		5,027,379	939,697.01	,		
Pine, white	363,105		41,101,797	7,682,578.88	205,509.05	126,686.83	332,1
Poplar	457		39,347	7,354.58	59.03	127.88	1
Spruce	11,073		928,315	173,516.82	3,713.26	4,413.71	8,1
Tamarack	2		100	18.69	1.30	.50	
Total Ontario Scale	783,374		72,674,661	13,584,048.78	357,161.73	331,192.61	688,3
Cubic Foot Measure							
Sawlogs	10		110.70	440.70	71	2.14	
Birch, white	10		118.70	118.70	.71	2.14	
Cedar	179		986.20	986.20	16.27	23.17	
Pine, jack	195		1,228.21	1,228.21	29.36	45.73	
Pine, red	1,098		6,154.97	6,154.97	203.11	323.06	
Pine, white	1,892		20,939.28	20,939.28	691.00	984.15	1,
Spruce	879		2,602.46	2,602.46	86.38	70.51	
Total Sawlogs	4,253		32,029.82	32,029.82	1,026.83	1,448.76	2,
Boom Timber, Piling,							
Poles							
Hemlock	58		1,313.69	1,313.69	67.26	11.56	
Pine, jack	43		710.42	710.42	30.39	12.23	
Pine, red	237		4,022.00	4,022.00	177.14	64.17	
Pine, white	428		8,582.80	8,582.80	421.41	93.56	
Spruce	200		2,899.88	2,899.88	119.25	39.37	
Total Boom Timber, Piling, Poles	966		17,528.79	17,528.79	815.45	220.89	1
Total Cubic Foot Measure	5,219		49,558.61	49,558.61	1,842.28	1,669.65	3

continue

AULT STE. MARIE (continued)

	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
age							
pwood							
1		1.23		104.55	.61	(1)	4.0
sam		1,866,42		158,645.70	2,612.99	.62 581.00	1.2
ch, white		99.60		8,466.00	49.80	113.97	3,193.9
ch, yellow		2.42		205.70	1.21	1.21	163.7
		.60		51.00	.30	.30	2.4
ple		39.91		3,392.35	19.95	19.96	.6
e, jack		114.01		9,690.85	228.02	57.85	39.9
e, red		6.09		517.65	8.53	9.74	285.8
e, white		104.80		8,908.00	146.72	167.63	18.2 314.3
olar		1,262.85		107,342.25	631.44	1,010.60	
uce		6,113.26		519,627.10	17,117.13	1,544.37	1,642.0 18,661.5
narack		1.47		124.95	2.06	.15	2.2
al Pulpwood		9,612.66		817.076.10	20,818.76		
lwood				017.070.10	20,010.76	3,507.40	24,326.1
dwood		2,289.53		194,610.05	1,144.77	1,144,77	2,289.54
wood		398.45		33,868.25	199.24	199.24	398.48
al Fuelwood		2,687.98		228,478.30	1,344.01	1,344.01	2,688.02
al Cordage		12 200 64					
- Corouge		12,300.64		1,045,554.40	22,162.77	4,851.41	27,014.18
laneous							
ts—lin. ft.							
ar	467		3,700	740.00	37.00	37.00	74.00
d Miscellaneous	467		3,700	740.00	37.00	37.00	74.00
al Ontario Scale	783,374		72,674,661	13,584,048.78	357,161.73	331,192.61	688,354.34
al Cubic Foot Measure	5,219		49,558.61	49,558.61	1,842.28	1,669.65	3,511.93
l Cordage		12,300.64	,	1,045,554.40	22,162.77	4,851.41	27,014.18
nd Total	789,060	12,300.64		14,679,901.79	381,203.78	337,750.67	718,954.45
Number of permits issued and included	Lin above 1	2.2		, ,	001/2031/0	337,730.07	7 10,334.43
		23					\$12,883.55
Conversion factor: 1 cubic foot = 5.35 1 cord = 85	board feet cubic feet.						

SIOUX LOOKOUT

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpag Value \$
Board Foot Measure Ontario Scale							
Pine, jack	77,287		1,798,732	336,211.59	7,194.92	1,322.00	8,516
Poplar	744		44,135	8,249.53	66.20		66
Spruce	47,264		1,391,245	260,045.79	5,564.98	2,338.39	7,903
Total Ontario Scale	125,295		3,234,112	604,506.91	12,826.10	3,660.39	16,486
Tree Length Material							
Balsam	12,752		627,652	117,318.13	2,510.61	1,255.30	3,765
Pine, jack	49,716		3,974,307	742,861.12	3,974.31		3,974
Spruce	182,374		11,234,035	2,099,819.63	44,936.14	22,468.07	67,404
Total Tree Length Material	244,842		15,835,994	2,959,998.88	51,421.06	23,723.37	75,144
Total Ontario Scale	370,137		19,070,106	3,564,505.79	64,247.16	27,383.76	91,630
Cubic Foot Measure Sawlogs							
Balsam	2		14.95	14.95	.25	.35	
Pine, jack	14,769		94,060.77	94,060.77	2,210.42	1,005.64	3,216
Pine, red	123		416.50	416.50	13.74	13.74	27
Poplar	1,786		19,569.77	19,569.77	117.42	72.94	190
Spruce	45,683		226,163.78	226,163.78	7,463.40	1,321.34	8,784
Total Sawlogs	62,363		340,225.77	340,225.77	9,805.23	2,414.01	12,219
Boom Timber, Piling, Poles Boom and Dimension Timber							
Pine, jack	29		241.44	241.44	8.21		3
Spruce	583		17,624.69	17,624.69	964.80		964
Poles							
Pine, jack	10,771		165,000.20	165,000.20	6,906.42	1,649.99	8,556
Pine, red	71		2,800.50	2,800.50	168.03	56.01	224
Total Boom Timber, Piling, Poles	11,454		185,666.83	185,666.83	8,047.46	1,706.00	9,753
Total Cubic Foot Measure	73,817		525,892.60	525,892.60	17,852.69	4,120.01	21,972
Cordage Pulpwood							
Balsam		2,365.88		201,099.80	3,312.25	806.87	4,119
Birch, white		265.13		22,536.05	132.57	26.51	159

continued

OUX LOOKOUT (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
l <mark>age</mark> Ipwood (continued)							
ne, jack		153,704.18 955.00 276,548.61		13,064,855.30 81,175.00 23,506,631.85	307,408.36 477.51 774,336.12	17,178.75 95.50 49,743.67	324,587.1 573.0 824,079.7
tal Pulpwood		433,838.80		36,876,298.00	1,085,666.81	67,851.30	- 1,153,518.1
ielwood							
rtwood		20.00 2,251.40		1,700.00 191,369.00	10.00 1,125.70		10.00 1,125.70
tal Fuelwood		2,271.40		193,069.00	1,135.70		1,135.70
tal Cordage		436,110.20		37,069,367.00	1,086,802.51	67,851.30	1,154,653.8
ellaneous sts—lin. ft.							
dar	90		650	130.00	6.50		6.50
tal Miscellaneous tal Ontario Scale tal Cubic Foot Measure tal Cordage	90 370,137 73,817	436,110.20	650 19,070,106 525,892.60	130.00 3,564,505.79 525,892.60 37,069,367.00	6.50 64,247.16 17,852.69 1,086,802.51	27,383.76 4,120.01 67,851.30	6.50 91,630.92 21,972.70 1,154,653.81
and Total	444,044	436,110.20		41,159,895.39	1,168,908.86	99,355.07	1,268,263.93
Number of permits issued and	included in ak	oove — 111					\$ 43,034.94
Conversion factor: 1 cubic foot 1 cord	5.35 board fe 85 cubic fe						, , , , , , , , , , , , , , , , , , , ,

SUDBURY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
oard Foot Measure							
Ontario Scale							
Ash	12		912	170.47	4.56	1.82	
Birch, white	3,521		157,275	29,397.20	235.91	665.79	90
Birch, yellow	4,820		326,804	61,084.86	1,634.03	6,252.77	7,88
Cedar	346		19,755	3,692.52	59.27	126.85	18
Elm	13		835	156.07	4.18	4.18	
Hemlock	2,649		183,353	34,271.59	550.05	2,518.51	3,00
Maple	6,165		441,371	82,499.25	2,206.86	1,056.14	3,20
Oak	67		6,415	1,199.07	32.08	15.84	4
Pine, white	87		6,206	1,160.00	31.03	31.03	
Spruce	611		35,821	6,695.51	143.28	394.03	5.
Tamarack	11		705	131.78	2.12	3.53	
Total Ontario Scale	18,302		1,179,452	220,458.32	4,903.37	11,070.49	15,9
Cubic Foot Measure							
Sawlogs							
Balsam	122		513.00	513.00	8.47	11.05	
Birch, white	91		741.37	74 1.37	4.45	15.23	
Pine, jack	281,663		1,528,731.86	1,528,731.86	35,925.20	2,892.50	38,8
Pine, red	57,438		407,462.00	407,462.00	13,446.26	12,473.14	25,9
Pine, white	75,722		921,566.86	921,566.86	30,411.70	29,204.13	59,6
Poplar	514		4,607.48	4,607.48	27.65	118.73	1
Spruce	56,826		317,188.79	317,188.79	10,467.22	1,791.18	12,2
Total Sawlogs	472,376		3,180,811.36	3,180,811.36	90,290.95	46,505.96	136,79
Boom Timber, Piling, Poles							
Boom and Dimension Timber							
Hemlock	21		451.56	451.56	21.76	23.40	
Pine, jack	5		68.84	68.84	2.75	4.45	
Pine, red	219		3,531.65	3,531.65	159.07	49.66	2
Pine, white	57		977.29	977.29	40.57	49.22	
Spruce	97		2,404.68	2,404.68	126.71	26.79	1
Poles							
Balsam	70		246.72	246.72	7.40	12.34	
Pine, jack	30		752.50	752.50	38.82	13.28	
Pine, red	2,108		45,302.20	45,302.20	2,272.64	1,383.14	3,6
Spruce	62		2,509.86	2,509.86	143.86	25.10	1

continue

JDBURY (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
otal Cubic Foot Measure	475,045		3,237,056.66	3,237,056.66	93,104.53	48,093.34	141,197.8
dage ulpwood							
sh		28.16		2,393.60	14.08	14.09	28.17
ılsam		741.10		62,993.50	1,037.55	571.63	1,609.18
rch, white		1,418.03		120,532.55	709.04	688.33	1,397.37
rch, yellow		7.84		666.40	3.92	3.92	7.84
aple		401.18		34,100.30	200.59	104.30	304.89
ak		.41		34.85	.21	.21	.42
ne, jack		63,102.96		5,363,751.60	126,205.92	2,396.02	
ne, red		313.73		26,667.05	439.22	92.31	128,601.94
ne, white		976.19		82,976.15	1,366.66		531.53
plar		9,207.36		782,625.60	4,603.69	1,062.76	2,429.42
ruce		9,373.06		796,710.10	,	4,558.49	9,162.18
		3,37 3.00		7 90,7 10.10	26,244.57	779.35	27,023.92
otal Pulpwood		85,570.02		7,273,451.70	160,825.45	10,271.41	171,096.86
elwood							
ardwood		511.50		43,477.50	255.75	250.75	FOC FC
ftwood		52.29		4,444.65		250.75	506.50
		52.23		4,444.03	26.15	26.14	52.29
otal Fuelwood		563.79		47,922.15	281.90	276.89	558.79
otal Cordage		86,133.81		7,321,373.85	161,107.35	10,548.30	171,655.65
rellaneous							
osts—lin. ft.							
edar	1,041		8,331	1,666.20	83.31	95.83	179.14
ining Timber—cu. ft.							
ne, red	14,783		1,847.90	1,847.90	30.44	61.96	02.40
ne, white	4,161		520.20	520.20	8.57	17.44	92.40
	1,101		320.20	320.20	0.37	17.44	26.01
tal Miscellaneous	19,985			4,034.30	122.32	175.23	297.55
tal Ontario Scale	18,302		1,179,452	220,458.32	4,903.37	11,070.49	15,973.86
tal Cubic Foot Measure	475,045		3,237,056.66	3,237,056.66	93,104.53	48,093.34	141,197.87
tal Cordage	7 - 10	86,133.81	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7,321,373.85	161,107.35	10,548.30	171,655.65
and Total	513,332	86,133.81		10,782,923.13	259,237.57	69,887.36	329.124.93
Number of permits issued and inclu	de de la contraction	472				-	023/121.33
INTURBER OF DARMITE ICCURA and inclu	dod in ahovo	172 (00)	version factor: 1 cub	uctoot - F 7F boom	toot		\$ 26,705.30

SWASTIKA

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpa Value \$
Board Foot Measure Ontario Scale							
Pine, white	2,505 32		191,733 500	35,837.94 93.46	958.67 1.50	1,433.15 3.50	2,39
Total Ontario Scale	2,537		192,233	35,931.40	960.17	1,436.65	2,39
Cubic Foot Measure Sawlogs							
Balsam Birch, white Pine, jack Poplar	70,745 28,343 1,103,149 54,297		388,391.99 127,108.96 5,109,787.46 414,303.08	388,391.99 127,108.96 5,109,787.46 414,303.08	6,408.47 762.66 120,080.02 2,485.81	1,819.42 811.83 68,334.41 2,457.82	8,22 1,57 188,41 4,94
Spruce	265,163		1,503,376.58	1,503,376.58	49,611.42	10,406.31	60,01
Total Sawlogs	1,521,697		7,542,968.07	7,542,968.07	179,348.38	83,829.79	263,17
Boom Timber, Piling, Poles Poles							
Pine, jack	5,309 300		90,566.78 8,513.29	90,566.78 8,513.29	3,984.89 449.26	2,351.68 212.83	6,33 66
Total Boom Timber, Piling, Poles	5,609		99,080.07	99,080.07	4,434.15	2,564.51	6,99
Total Cubic Foot Measure	1,527,306		7,642,048.14	7,642,048.14	183,782.53	83,394.30	270,17
Cordage Pulpwood							
Balsam Birch, white Pine, jack Poplar Spruce Tamarack		6,161.71 2,147.73 3,608.86 10,596.30 41,342.85 119.43		523,745.35 182,557.05 306,753.10 900,685.50 3,514,142.25 10,151.55	8,626.40 1,073.88 7,217.72 5,298.20 115,759.99 167.20	1,847.19 1,066.94 125.72 5,136.89 19,150.59 25.36	10,47 2,14 7,34 10,43 134,91
Total Pulpwood		63,976.88		5,438,034.80	138,143.39	27,352.69	165,49
Fuelwood							
Hardwood		723.00 299.00		61,455.00 25,415.00	361.50 149.50		36 14
Total Fuelwood		1,022.00		86,870.00	511.00		51

continuec

VASTIKA (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
rdage (continued) olts							
oplar		81.08		6,891.80	40.54	40.54	81.08
otal Bolts		81.08		6,891.80	40.54	40.54	81.08
otal Cordage		65,079.96		5,531,796.60	138,694.93	27,393.23	166,088.16
cellaneous osts—lin. ft.							
ledar	5,105		40,336	8,067.20	403.36		403.36
Aining Timber—cu. ft.							
pruce	5,453		9,359.99	9,359.99	308.88	38.38	347.26
otal Miscellaneous otal Ontario Scale otal Cubic Foot Measure otal Cordage	10,558 2,537 1,527,306	65,079.96	192,233 7,642,048.14	17,427.19 35,931.40 7,642,048.14 5,531,796.60	712.24 960.17 183,782.53 138,694.93	38.38 1,436.65 86,394.30 27,393.23	750.62 2,396.82 270,176.83 166.088.16
Grand Total	1,540,401	65,079.96		13,227,203.33	324,149.87	115,262.56	439,412.43
Number of permits issued and includ	ded in above —	- 208 Co		1 cubic foot = 5.35 1 cord = 85	board feet - cubic feet.		\$ 47,731.25

VILLE

MMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

	Species .	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
	ot Measure							
intario	Scale							
sh	* * * * * * * * * * * * * * * * * * * *	3,051		141,834	26,511.03	709.26	430.54	1,139.80
alsam	* * * * * * * * * * * * * * * * * * * *	7,438		197,585	36.931.78	790.34	1,173.79	1,964.13
ISSWO	od	14,515		658,531	123,089.91	3,292.74	5,631.51	8.924.25
eech	• • • • • • • • • • • • • • • • • • • •	32,737		1,283,148	239,840.75	1,924.79	4.285.39	6,210.18
rch, v	vhite	9,854		334,660	62,553.27	501.97	2,062.06	2,564.03
rch, y	vellow	12,956		737,288	137,810.84	3,686.52	7,832.37	11,518.89
20 20	• • • • • • • • • • • • • • • • • • • •	6,899		160,146	29,933.83	480.43	443.33	923.76

continued . . .

TWEED (continued)

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stum Vali \$
pard Foot Measure (continued)							
Cherry	234		12,380	2,314.02	61.94	112.63	
Elm	4,428		294,246	54,999.25	1,471.29	867.54	2,
Hemlock	26,248		1,223,008	228,599.63	3,669.03	4,907.78	8,
Maple	117,977		6,081,969	1,136,816.64	30,409.93	27,545.74	57,
Oak	11,099		443,249	82,850.28	2,216.30	3,083.75	5
Pine, red	17,076		751,884	140,539.07	3,759.49	5,929.03	9
Pine, white	54,682		3,095,705	578,636.45	15,478.60	24,239.19	40,
Poplar	36,385		1,523,447	284,756.45	2,285.18	5,498.47	7,
Spruce	23,618		1,004,170	187,695.33	4,016.69	6,983.76	11,
Tamarack	387		13,431	2,510.47	40.30	58.09	,
Total Ontario Scale	379,584		17,956,681	3,356,389.00	74,794.80	102,084.97	176,
ubic Foot Measure Sawlogs							
Balsam	2		36.11	36.11	.60	.31	
Pine, red	13		294.86	294.86	9.73	7.96	
Pine, white	32		639.08	639.08	21.09	13.42	
Poplar	3		47.58	47.58	.29	.24	
Spruce	11		190.89	190.89	6.30	.95	
Total Sawlogs	61		1,208.52	1,208.52	38.01	22.88	
Boom Timber, Piling, Poles Boom and Dimension Timber							
Ash	1		20.28	20.28	1.01		
Balsam	1		18.72	18.72	.75		
Beech	9		246.57	246.57	13.03		
Birch, yellow	1		14.92	14.92	.60	.30	
Elm	4		83.91	83.91	4.05		
Hemlock	147		2,766.38	2,766.38	131.14	55.32	
Maple	7		193.98	193.98	10.11	.56	
Pine, red	8		149.75	149.75	6.26	100	
Pine, white	14		262.05	262.05	11.69		
Poplar	3		75.93	75.93	3.80		
Spruce	17		441.59	441.59	23.27	18.97	
Poles							
Cedar	90		789.30	789.30	28.25	15.80	
Pine, red	53		381.30	381.30	13.15	7.63	
Pine, white	14		144.68	144.68	5.40	2.89	
Spruce	6		147.92	147.92	7.20	2.95	
Total Boom Timber, Piling, Poles	375		5,737.28	5,737.28	259.71	104.42	3

150 continue

VEED (continued)

Conversion factor:

1 cubic foot = 5.35 board feet 1 cord = 85 cubic feet.

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stumpage Value \$
tal Cubic Foot Measure	436		6,945.80	6,945.80	297.72	127.30	425.02
lage							
lpwood							
Isam		2,095.48		178,115.80	2,933.69	1,091.49	4,025.18
dar		159.21		13,532.85	222.90	16.02	238.92
mlock		75.70		6,434.50	105.98	12.14	118.12
ne, white		172.28		14,643.80	241.19	.18	241.37
plar		73.97		6,287.45	36.99	18.49	
ruce		968.40					55.48
marack		9.90		82,314.00	2,711.52	50.43	2,761.95
rdwood				841.50	13.86	.83	14.69
awood		16,460.92		1,399,178.20	8,230.50	4,509.51	12,740.01
tal Pulpwood		20,015.86		1,701,348.10	14,496.63	5,699.09	20,195.72
elwood							
rdwood		00.01		T 400 0T			
ftwood		88.01		7,480.85	44.01	23.67	67.68
ftwood		2.92		248.20	1.46	.73	2.19
tal Fuelwood		90.93		7,729.05	45.47	24.40	69.87
tal Cordage		20,106.79		1,709,077.15	14,542.10	5,723.49	20,265.59
ellaneous sts—lin. ft.							
dar	7.470		EO E47	44.002.40			
	7,478		59,517	11,903.40	595.17		595.17
ning Timber—cu. ft.							
plar	3,432		6,061.35	6,061.35	35.66	142.62	178.28
tal Miscellaneous	10.010			17.074.75	620.00	440.40	
tal Ontario Scalo	10,910		17.056.604	17,964.75	630.83	142.62	773.45
tal Ontario Scale	379,584		17,956,681	3,356,389.00	74,794.80	102,084.97	176,879.77
tal Cordage	436	20.406.70	6,945.80	6,945.80	297.72	127.30	425.02
tal Cordage		20,106.79		1,709,077.15	14,542.10	5,723.49	20,265.59
and Total	390,930	20,106.79		5,090,376.70	90,265.45	108,078.38	198,343.83
Number of permits issued and include	ed in above —	174					\$ 66,817.54

WHITE RIVER

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LANDS DURING PERIOD APRIL 1ST, 1966 TO MARCH 31ST, 1967

Species	Pieces	Cords	Feet	Equivalent in Cu. ft.	Dues \$	Bonus \$	Stum Va
Cubic Foot Measure Sawlogs							
Birch, white	3,068		10,770.32	10,770.32	64.62	581.60	64
Pine, jack	215,393		2,472,584.96	2,472,584.96	58,105.75	16,071.80	74,17
Poplar	11,449		37,191.37	37,191.37	223.15	520.68	74
Spruce	67,076		456,607.53	456.607.53	15,068.05	1,398.77	16,46
Total Sawlogs	296,986		2,977,154.18	2,977,154.18	73,461.57	18,572.85	92,03
Total Cubic Foot Measure	296,986		2,977,154.18	2,977,154.18	73,461.57	18,572.85	92,03
Cordage Pulpwood							
Balsam		1,457.30		123,870.50	2,040.21	546.30	2,58
Pine, jack		25,746.72		2,188,471.20	51,493.44	2,581.36	54,07
Pine, jack (export levy)		(5,051.72)		(429,396.20)		2,525.90	2,52
Poplar		13.95		1,185.75	6.97	6.98	1
Spruce		61,100.68		5,193,557.80	171,081.90	16,717.43	187,79
Total Pulpwood		88,318.65		7,507,085.25	224,622.52	22,377.97	247,00
Fuelwood							
Hardwood		126.00		10,710.00	63.00	63.00	12
Softwood		63.00		5,355.00	31.50	31.50	6
Total Fuelwood		189.00		16,065.00	94.50	94.50	18
Total Cordage		88,507.65		7,523,150.25	224,717.02	22,472.47	247,18
Miscellaneous Mining Timber—cu. ft.							
Spruce	1,200		2,360.00	2,360.00	77.88	63.72	14
Total Miscellaneous	1,200		2,360.00	2,360.00	77.88	63.72	14
Total Cubic Foot Measure	296,986		2,977,154.18	2,977,154.18	73,461.57	18,572.85	92,03
Total Cordage		88,507.65	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7,523,150.25	224,717.02	22,472.47	247,18
Grand Total	298,186	88,507.65		10,502,664.43	298,256.47	41,109.04	339,36
Number of permits issued and includ	led in above —	12					\$ 1,38

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Conversion factor: 1 cubic foot = 5.35 board feet

 $1 \operatorname{cord} = 85 \operatorname{cubic feet}.$

MBER SALES FROM APRIL 1, 1967 TO MARCH 31, 1968

Date Sold 1967	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$		Total \$
ay 1	Lyndoch Township	0.1	5	George Stein,	white pine saw-logs	7.00	8.00	5.00	20.00	per MBM
				Schutt, Ontario.	red pine saw-logs	7.00	8.00	5.00	20.00	per MBM
				,	spruce saw-logs	6.00	10.00	4.00	20.00	per MBM
					cedar saw-logs		6.00	3.00	9.00	per MBM
					hemlock saw-logs		3.00	3.00	6.00	per MBM
					yellow birch saw-logs	6.00	9.00	5.00	20.00	per MBM
					white birch saw-logs	5.00	4.50	1.50	11.00	per MBM
					poplar saw-logs	6.00	2.50	1.50	10.00	
					maple saw-logs	9.00	6.00	5.00		per MBM
					bass-wood saw-logs	6.00	9.00		20.00	per MBM
					oak saw-logs			5.00	20.00	per MBM
						2.00	5.00	5.00	12.00	per MBM
					balsam pulpwood	-	0.60	1.40	2.00	per cord
					hardwood pulpwood	0.75	0.25	0.50	1.50	per cord
e 6	Evelyn Township	0.1	6	Murray McArthur, Night Hawk Centre, Connaught, Ontario.	jack pine pulpwood	2.70	1.40	2.00	6.10	per cord
e 6	Evelyn Township	0.1	6	Ted Zajac, Box 440, Timmins, Ontario.	jack pine pulpwood	2.35	1.40	2.00	5.75	per cord
e 6	Evelyn Township	0.1	4	Claude Racicot, 189 Spruce Street N., Timmins, Ontario.	jack pine pulpwood	2.10	1.40	2.00	5.50	per cord
e 14	McClure Township	0.3	3	G. W. Martin Lumber Ltd.,	corugo com logo	6.00	11.00	4.00	24.00	14014
	cerare rownship	0.5	5	Box 10,	spruce saw-logs balsam saw-logs	6.00	11.00	4.00	21.00	per MBM
						3.00	5.00	4.00	12.00	per MBM
				Harcourt Post Office,	cedar saw-logs	20.00	5.00	3.00	28.00	per MBM
				Ontario.	hemlock saw-logs	12.00	5.00	3.00	20.00	per MBM
					yellow birch saw-logs	15.00	11.00	5.00	31.00	per MBM
					white birch saw-logs	18.00	6.50	1.50	26.00	per MBM
					maple saw-logs	10.50	7.00	5.00	22.50	per MBM
					bass-wood saw-logs	8.00	11.00	5.00	24.00	per MBM
					oak saw-logs	10.00	6.00	5.00	21.00	per MBM
					ash saw-logs	10.00	4.00	5.00	19.00	per MBM
					elm saw-logs	7.00	5.00	5.00	17.00	per MBM
					cherry saw-logs	20.00	5.00	5.00	30.00	per MBM
					cherry saw-logs beech saw-logs	20.00 4.00	5.00 5.50			

TIMBER SALES (continued)

Date Sold 1967	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	-	Total \$
luna 16	Dungannon Township	0.2	3	Ted Evans,	white pine saw-logs	5.00	10.00	5.00	20.00	per l
June 16	Dungannon Township	0.2	J	R.R. #1,	red pine saw-logs	5.00	10.00	5.00	20.00	perl
				Eldorado, Ontario.	spruce saw-logs	5.00	12.00	4.00	21.00	per
				Eldorado, Omano.	balsam saw-logs	5.00	6.00	4.00	15.00	per l
					cedar saw-logs	2.00	5.00	3.00	10.00	per l
					tamarack saw-logs	2.00	5.00	3.00	10.00	per l
					maple saw-logs	5.00	8.00	5.00	18.00	per
					yellow birch saw-logs	4.00	11.00	5.00	20.00	peri
					white birch saw-logs	5.00	6.50	1.50	13.00	perl
					elm saw-logs		5.00	5.00	10.00	per l
					poplar saw-logs	5.00	4.50	1.50	11.00	per l
					spruce pulpwood		0.20	2.80	3.00	per
					balsam pulpwood		0.60	1.40	2.00	per
					hardwood pulpwood	0.25	0.25	0.50	1.00	per
luno 10	McClure Township	0.2	3	Clarence Wasmund,	white pine saw-logs	5.00	10.00	5.00	20.00	per
June 19	McClure Township	0.2	3	Maple Leaf, Ontario.	spruce saw-logs	5.00	11.00	4.00	20.00	per
				Maple Lear, Officiatio.	balsam saw-logs	5.00	5.00	4.00	14.00	per
					cedar saw-logs	2.00	5.00	3.00	10.00	per
					hemlock saw-logs	4.00	5.00	3.00	12.00	per
					yellow birch saw-logs	14.00	11.00	5.00	30.00	per
					white birch saw-logs	18.00	6.50	1.50	26.00	per
					maple saw-logs	14.00	7.00	5.00	26.00	per
					bass-wood saw-logs	10.00	11.00	5.00	26.00	per
					oak saw-logs	15.00	6.00	5.00	26.00	per
					ash saw-logs	6.00	4.00	5.00	15.00	per
					elm saw-logs	5.00	5.00	5.00	15.00	per
					beech saw-logs	5.00	5.50	1.50	12.00	per
					spruce pulpwood	0.10	0.10	2.80	3.00	per
July 17	Herschel Township	0.1	3	Clarence Wasmund,	spruce saw-logs	5.00	11.00	4.00	20.00	per
July 17	ricischer rownship	0.1	3	Maple Leaf,	balsam saw-logs	3.00	6.00	4.00	13.00	per
				Ontario.	cedar saw-logs	1.00	6.00	3.00	10.00	per
				Officialio.	tamarack saw-logs	3.00	6.00	3.00	12.00	per
					hemlock saw-logs	3.00	6.00	3.00	12.00	per
					yellow birch saw-logs	14.00	11.00	5.00	30.00	per
					white birch saw-logs	18.00	6.50	1.50	26.00	per
					poplar saw-logs	1.00	4.50	1.50	7.00	per
					maple saw-logs	17.00	8.00	5.00	30.00	
					bass-wood saw-logs	10.00	11.00	5.00	26.00	
					ash saw-logs	4.00	6.00	5.00	15.00	
					elm saw-logs	5.00	5.00	5.00	15.00	
					cherry saw-logs	4.00	6.00	5.00	15.00	
					beech saw-logs	3.00	6.50	1.50	11.00	
									3.00	
					balsam pulpwood	1.00	0.60	1.40	3.00	per

	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$		Total
17	Herschel Township	0.2	3	Clarence Wasmund,	spruce saw-logs	5.00	11.00	4.00	20.00	man AADA
				Maple Leaf,	balsam saw-logs	3.00	6.00	4.00	20.00	per MBN
				Ontario.	cedar saw-logs	1.00	6.00	3.00	10.00	per MBA
					tamarack saw-logs	3.00	6.00	3.00	12.00	per MB/ per MB/
					hemlock saw-logs	3.00	6.00	3.00	12.00	per MB.
					yellow birch saw-logs	14.00	11.00	5.00	30.00	per MB
					white birch saw-logs	18.00	6.50	1.50	26.00	per MB
					poplar saw-logs	1.00	4.50	1.50	7.00	per MB
					maple saw-logs	17.00	8.00	5.00		
					bass-wood saw-logs	10.00	11.00	5.00	30.00 26.00	per MB
					ash saw-logs	4.00	6.00	5.00	15.00	per MB
					elm saw-logs	5.00	5.00	5.00		per MB/
					cherry saw-logs	4.00	6.00	5.00	15.00	per MB
					beech saw-logs	3.00	6.50	1.50	15.00 11.00	
					balsam pulpwood	1.00	0.60	1.40	3.00	per MB
4	Cashel Township	0.2	2	N I L. I						
	Casher rownship	0.3	3	Noront Lumber Ltd.,	spruce saw-logs		12.00	4.00	16.00	per MB
				Gooderham, Ontario.	white birch saw-logs	7.00	6.50	1.50	15.00	per MB
					poplar saw-logs	2.00	4.50	1.50	8.00	per MB
					maple saw-logs	10.26	8.00	5.00	23.26	per MB
					bass-wood saw-logs	6.26	11.00	5.00	22.26	per MB
					oak saw-logs	4.00	7.00	5.00	16.00	per MB
					elm saw-logs	5.00	5.00	5.00	15.00	per MB
					beech saw-logs	0.50	4.50	1.50	6.50	per MB
					hardwood pulpwood	_	0.25	0.50	0.75	per core
14	Wade Area	0.3	2	Ed Huppe,	spruce pulpwood	1.05	1.45	2.80	5.30	per cord
				Wade, Ontario.	balsam pulpwood	2.00	0.60	1.40	4.00	per core
					jack pine pulpwood	1.50		2.00	3.50	per cord
16	Mayo Township	0.2	2	Wesont Lumber	homlosk saw to an	2.00	F 00			
	,	7 7 7 7	_	Company Limited,	hemlock saw-logs	3.00	5.00	3.00	11.00	per MBA
				Box 89,	yellow birch saw-logs	15.80	11.00	5.00	31.80	per MBA
				Clifford, Ontario.	white birch saw-logs	5.10	6.50	1.50	13.10	per MBA
				Ciliora, Offiano.	poplar saw-logs	1.90	4.50	1.50		per MBA
					maple saw-logs	19.60	8.00	5.00	32.60	per MBA
					bass-wood saw-logs	15.80	11.00	5.00	31.80	per MBA
					oak saw-logs	8.80	7.00	5.00	20.80	per MBA
					elm saw-logs	2.10	5.00	5.00	12.10	per MBN
					beech saw-logs	4.10	4.50	1.50	10.10	per MBA
					hardwood pulpwood		0.25	0.50	0.75	per cord

TIMBER SALES continued.

Date Sold 1967	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
Aug. 22	McCowan Township	4.7	5	Arrow Timber Company Limited, Box 1210, Hearst, Ontario.	spruce saw-logs balsam saw-logs white birch saw-logs poplar saw-logs	0.0172 0.0172 0.0153 0.0153	0.009 0.0255 0.009 0.009	0.033 0.0165 0.006 0.006	0.0592 per ci 0.0592 per ci 0.0303 per ci 0.0303 per ci
Sept. 5	Niven Township	0.1	3	Herb Shaw and Sons Limited, Box 515, Pembroke, Ontario.	red pine poles, more than 30 cu. ft. white pine saw-logs spruce saw-logs white pine pulpwood red pine pulpwood spruce pulpwood	0.045 0.0075 0.0025 —— ——	0.06 0.087 0.037 0.10 0.10 1.20	0.06 0.033 0.033 1.40 1.40 2.80	0.165 per c 0.1275 per c 0.0725 per c 1.50 per c 1.50 per c 4.00 per c
Oct. 31	Freeman Township	1.9	1	Bert Taylor Construction Ltd., Box 103, Parry Sound, Ontario.	white pine saw-logs red pine saw-logs spruce saw-logs hemlock saw-logs yellow birch saw-logs white birch saw-logs poplar saw-logs maple saw-logs bass-wood saw-logs oak saw-logs elm saw-logs cherry saw-logs beech saw-logs	2.75 1.50 1.50 1.00 28.00 2.00 1.00 4.75 2.00 2.00 1.00 2.00 0.50 0.50	10.00 7.00 6.00 2.00 15.00 3.50 3.50 12.00 7.00 5.00 4.00 4.00 4.00 3.50	5.00 5.00 4.00 3.00 5.00 1.50 1.50 5.00 5.00 5.00 5.00 5	17.75 per N 13.50 per N 11.50 per N 6.00 per N 48.00 per N 6.00 per N 6.00 per N 14.00 per N 12.00 per N 12.00 per N 12.00 per N 10.00 per N 11.00 per N 9.50 per N 5.50 per N
Nov. 23	Pardee Township	0.4	5	Brian Tikkanen, R.R. #2, Port Arthur, Ontario.	white pine saw-logs spruce saw-logs poplar saw-logs spruce pulpwood balsam pulpwood jack pine pulpwood white birch pulpwood poplar pulpwood	0.035 0.035 0.035 2.85 1.55 1.35 2.50	0.017 0.017 0.004 0.60 0.70 0.40 0.25 0.25	0.033 0.033 0.006 2.80 1.40 2.00 0.50	0.085 per ci 0.085 per ci 0.045 per ci 6.25 per ci 3.65 per ci 3.75 per ci 3.25 per ci
Dec. 6	Gould Township	0.1	2	Leonard N. Smith, R.R. #2, Thessalon, Ontario.	white pine saw-logs hemlock saw-logs yellow birch saw-logs maple saw-logs oak saw-logs	7.00 3.00 33.00 10.00 10.00	3.00 2.00 15.00 5.00 5.00	5.00 3.00 5.00 5.00 5.00	15.00 per N 8.00 per N 53.00 per N 20.00 per N 20.00 per N

	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
6	Bridgland Township	0.1	3	Leonard N. Smith, R.R. #2, Thessalon, Ontario.	white pine saw-logs hemlock saw-logs yellow birch saw-logs white birch saw-logs maple saw-logs oak saw-logs	7.00 3.00 39.00 39.00 12.00	3.00 2.00 15.00 12.50 5.00 5.00	5.00 3.00 5.00 1.50 5.00 5.00	15.00 per MBN 8.00 per MBN 59.00 per MBN 53.00 per MBN 22.00 per MBN 22.00 per MBN
11	Laurier Township	0.2	4	Frank Rick, R.R. #1, Trout Creek, Ontario.	yellow birch saw-logs maple saw-logs bass-wood saw-logs elm saw-logs cherry saw-logs beech saw-logs hardwood pulpwood	23.00 17.00 10.00 10.00 5.00 5.00	15.00 7.00 10.00 5.00 5.00 3.50 0.50	5.00 5.00 5.00 5.00 5.00 1.50	43.00 per MBM 29.00 per MBM 25.00 per MBM 15.00 per MBM 10.00 per MBM 1.00 per corc
11	Patterson Township	0.1	1	Bernard J. Rick, R.R. #1, Trout Creek, Ontario.	white pine saw-logs red pine saw-logs spruce saw-logs yellow birch saw-logs white birch saw-logs poplar saw-logs maple saw-logs bass-wood saw-logs oak saw-logs elm saw-logs	10.00 3.00 1.00 3.00 8.00 8.00 6.00	10.00 10.00 8.00 15.00 8.50 3.50 7.00 10.00 5.00 5.00	5.00 5.00 4.00 5.00 1.50 1.50 5.00 5.00 5.00 5.00	15.00 per MBM 15.00 per MBM 12.00 per MBM 30.00 per MBM 13.00 per MBM 12.00 per MBM 18.00 per MBM 18.00 per MBM 18.00 per MBM 18.00 per MBM 16.00 per MBM
11	Mills Township	0.2	8	Gilbert Gorham, Loring, Ontario.	white pine saw-logs yellow birch saw-logs white birch saw-logs poplar saw-logs maple saw-logs bass-wood saw-logs ash saw-logs elm saw-logs beech saw-logs	6.00 32.10 20.00 0.006 20.10 20.00 20.00 20.00 5.00	10.00 15.00 8.50 0.006 7.00 10.00 5.00 5.00 3.50	5.00 5.00 1.50 0.006 5.00 5.00 5.00 5.00 1.50	21.00 per MBM 52.10 per MBM 30.00 per MBM 0.018 per cu. f 32.10 per MBM 35.00 per MBM 30.00 per MBM 30.00 per MBM 10.00 per MBM
. 11	Paxton Township	1.1	4	Alex E. Preston, Sundridge, Ontario.	spruce saw-logs yellow birch saw-logs maple saw-logs ash saw-logs elm saw-logs cherry saw-logs beech saw-logs	3.00 30.00 19.00 4.00 7.00 12.00 7.00	8.00 15.00 7.00 3.00 3.00 3.00 3.50	4.00 5.00 5.00 5.00 5.00 5.00 1.50	15.00 per MBN 50.00 per MBN 31.00 per MBN 12.00 per MBN 20.00 per MBN 12.00 per MBN

TIMBER SALES (continued)

Date Sold 1967	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
Dec. 27	Joly Township	0.5	1	Ernest Gruenig, R.R. #2, Sundridge, Ontario.	yellow birch saw-logs maple saw-logs elm saw-logs cherry saw-logs hardwood pulpwood	16.00 7.00 7.00 10.00 0.50	15.00 7.00 5.00 5.00 0.50	5.00 5.00 5.00 5.00 0.50	36.00 per l 19.00 per l 17.00 per l 20.00 per l 1.50 per c
Dec. 27	Oakley Township	0.3	2	Crockford & Gallaugher, R.R. #2, Bracebridge, Ontario.	yellow birch saw-logs white birch saw-logs maple saw-logs bass-wood saw-logs oak saw-logs ash saw-logs elm saw-logs cherry saw-logs beech saw-logs	15.00 13.50 9.00 5.00 5.00 5.00 5.00 5.00 5.00	15.00 5.00 7.00 10.00 5.00 5.00 5.00 5.00 3.50	5.00 1.50 5.00 5.00 5.00 5.00 5.00 5.00	35.00 per 20.00 per 21.00

OWN TIMBER LICENCES 1967 — ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type of Transaction
il 12/67	Weyerhaeuser Canada Limited, Box 179, Richmond Hill, Ontario	Poitras Clarkson and Eddy Townships	1969	Re-issue
il 19/67	J. H. Normick Ltee, La Sarre, Quebec	St. Laurent and Clive Townships	1967	New
y 2/67	Lac Seul Land & Lumber Company Limited, Box 627, Port Arthur, Ontario	Unsurveyed Territory Kenora District	1969	Re-issue
y 9/67	August E. Quade, Quadeville, Ontario	Brudenell and Lyndoch Townships	1970	Re-issue
/ 9/67	Campbell Red Lake Mines Limited, 360 Bay Street, Toronto 1	Balmer Township	1970	Re-issue
/ 9/67	Dickenson Mines Limited, 25 Adelaide Street (W), Toronto	Balmer Township	1970	Re-issue
/ 9/67	M. J. Lábelle Co. Ltd., Box 410, Cochrane, Ontario	Leitch Township	1970	Re-issue
9/67	August E. Quade, Quadeville, Ontario	Griffith and Lyndoch Townships	1969	Re-issue
9/67	Leo Lapierre, 418 Wilson Ave., Timmins, Ontario	Sewell Township	1970	Re-issue
9/67	Kokotow Lumber Limited, 5 McCamus Avenue, Kirkland Lake, Ontario	McVittie, Hearst and Skead Townships etc.	1972	Re-issue
9/67	Leo Lapierre, 418 Wilson Avenue, Timmins, Ontario	Sewell Township	1970	Re-issue
9/67	M. J. Labelle Co. Limited, Cochrane, Ontario	Calder and Lennox Townships	1970	Re-issue
9/67	Northern Forest Products Limited, P.O. Box 990, Port Arthur, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
9/67	Elmer Kreiger, Palmer Rapids, Ontario	Griffith Township	1969	Re-issue
17/67	S. S. Johnson Limited, Box 1412, South Porcupine, Ontario	Kenogaming Township	1970	Re-issue
17/67	Joseph A. Bliss, Mine Centre, Ontario	Unsurveyed Territory — Rainy River District	1969	Re-issue
17/67	Leonard John Gulick Palmer Rapids, Ontario	Griffith and Lyndoch Townships	1969	Re-issue
17/67	Jacobson Lumber Company Limited, P.O. Box 234, Port Arthur, Ontario	McTavish Township	1970	Re-issue
17/67	Jim Young Powassan, Ontario	Joly Township	1968	Re-issue
17/67	Lac Seul Land & Lumber Company Limited, Box 627, Port Arthur, Ontario	Unsurveyed Territory — Kenora District	1970	Re-issue

CROWN TIMBER LICENCES (continued)

Date	Licensee	Location	Expiry March 1st	Type Transa
May 17/67	Allan Lahaie & Son, Alban, Ontario	Cox Township	1970	New
May 17/67	Henry J. Chapeskie, Barry's Bay, Ontario	Dickens and Jones Townships	1970	Re-is
June 1/67	Edouard Smith, Box 104, Ignace, Ontario	Furniss and McNevin Townships	1970	Re-is
June 7/67	Abitibi Paper Company Ltd., Toronto-Dominion Centre, Toronto 1, Ont.	Goodfellow and Fallis Townships	1968	New
June 8/67	Austin Lumber (Dalton) Limited, P.O. Box 364, Sudbury, Ontario	Unsurveyed Territory Algoma & Sudbury Districts	1976	Re-is
June 12/67	W. T. Ankney, Box 2095, Dryden, Ontario	Boucher and Conant Townships	1968	New
June 12/67	Bruce Campbell, Quibell, Ontario	Unsurveyed Territory — Kenora District	1968	New
June 12/67	Joseph Kirouac, Red Lake Road, Ontario	Unsurveyed Territory — Kenora District	1968	New
June 12/67	Leonard Jones, Red Lake Road, Ontario	Unsurveyed Territory — Kenora District	1968	New
June 12/67	Maurice Ouellette, Box 1183, Dryden, Ontario	Unsurveyed Territory —- Kenora District	1968	New
June 12/67	Rene Ross, Red Lake Road, Ontario	Unsurveyed Territory — Kenora District	1968	New
June 12/67	Northern Plywoods Limited, Box 630, Nipigon, Ontario	Unsurveyed Territory — Thunder Bay District	1968	New
June 12/67	J. H. Normick Ltee, La Sarre, Quebec	Abbotsford Township	1968	New
June 12/67	J. H. Normick Ltee, La Sarre, Quebec	Marriott and Stoughton Townships	1968	New
June 21/67	Polar Lumber Company Limited, Hearst, Ontario	Fushimi Township	1971	New
June 22/67	Feldman Timber (Matheson) Limited, P.O. Box 440, Timmins, Ontario	Thackery and Elliott Townships	1969	Re-is
June 29/67	Gosselin Brothers, Hearst, Ontario	Fushimi Township	1971	New
June 29/67	Howard-Bienvenu Inc., La Sarre, Quebec	Lamplugh, Frencheville and Harker Townships	1969	Re-is
June 29/67	Jim Mathieu Lumber Limited, Sapawe, Ontario	Rainy River District	1972	Re-is
July 5/67	George Kenneth Stringer Box 998, South Porcupine, Ontario	Gowan and Wark Townships	1969	Re-is

ROWN TIMBER LICENCES (continued)

te	Licensee	Location	Expiry March 31st	Type of Transaction
y 10/67	T. B. Skidmore Forest Products Limited, Brower, Ontario	Blount and Laughton Townships	1968	New
y 18/67	H. Kutschke & Son Limited, Pembroke, Ontario	Bronson Township	1970	Re-issue
y 18/67	Weldwood of Canada Limited, Box 247, Islington, Ontario	Unsurveyed Territory — Thunder Bay District	1968	New
y 19/67	Cochrane Enterprises Limited, Cochrane, Ontario	Avon Township	1968	New
y 19/67	Carson Lake Lumber Limited, 260 Rosewood Ave., Pembroke, Ontario	Barron and Stratton Townships	1970	New
y 19/67	Cecil Weaver, Echo Bay, Ontario	Township 202	1969	Re-issue
y 19/67	Rene Fabris, P.O. Box 327, Elliott Lake, Ontario	Township 143	1969	Re-issue
gust 1/67	Staniforth Lumber and Veneer Limited, 4999 St. Catherines St. W., Montreal 6, Que.	Wilkes, Boulter and Biggar Townships etc.	1976	New
gust 1/67	Cochrane Enterprises Limited, Cochrane, Ontario	Freele, Challies and Findlay Twps. etc.	1968	New
gust 1/67	Edgar C. White Co. Limited, South River, Ontario	Ballantyne Township	1969	New
gust 1/67	Whitman Lumber Company Limited, North Bay, Ontario	Phelps Township	1968	Re-issue
gust 1/67	Herb Shaw and Sons Limited, 137 McKay Street, Pembroke, Ontario	Bronson, Head and Stratton Townships	1969	Re-issue
gust 9/67	Gillies Bros. & Co. Ltd. Braeside, Ontario	Strathy, Cassels and Hartle Townships etc.	1973	New
gust 9/67	Douglas R. Andersen, P.O. Box 1719, Dryden, Ontario	MacFie Township	1968	New
sust 9/67	Kokotow Lumber Limited, 5 McCamus Ave., Kirkland Lake, Ont.	Holmes, Gross and Burt Townships	1968	New
ust 9/67	G. A. Querel, Box 54, Vermilion Bay, Ontario	Unsurveyed Territory — Kenora District	1968	New •
ust 9/67	The Ontario Paper Company Limited, Thorold, Ontario	Bisley Township	1969	Re-issue
ust 17/67	The Great Lakes Paper Company Limited, Box 430, Fort William, Ontario	Unsurveyed Territory — Thunder Bay District	1968	New
ust 17/67	Wm. Pollock, & Son Limited, Englehart, Ontario	Sharpe Township	1970	Re-issue
ust 17/67	The Great Lakes Paper Company Limited, Box 430, Fort William, Ontario	Unsurveyed Territory — Thunder Bay District	1968	New

CROWN TIMBER LICENCES (continued)

Date	Licensee	Location	Expiry March 31st	Type o Transacti
August 25/67	Stewart Bros.,	Bagot Township	1972	New
August 25/67	R.R. #3, Arnprior, Ontario Isidore Carre,	Pardo Township	1969	New
August 25/67	River Valley, Ontario Isidore Roy, 175 Front Street, Sturgeon Falls, Ont.	Davis Township	1968	New
August 25/67	Louis Brun, Field, Ontario	Janes and McNish Townships	1969	Re-iss
August 25/67	John B. Smith & Sons Limited, Callander, Ontario	Fell Township	1968	New
August 25/67	Whitman Lumber Company Limited, P.O. Box 808, North Bay, Ontario	Nothan Township	1968	New
August 25/67	James Gibson & Sons Limited, P.O. Box 734, North Bay, Ontario	Stewart and Merrick Townships	1968	New
September 8/67	Seine River Tourist & Timber Limited, Laseine, Flanders, Ontario	Unsurveyed Territory — Rainy River District	1969	Re-iss
September 8/67	A. & L. Lafreniere Lumber Limited, Chapleau, Ontario	D'Arcy Township	1969	New
September 8/67	Maurice Lecours, Hearst, Ontario	Bannerman Township	1969	Re-iss
September 8/67	Herb Shaw and Sons Limited, 137 McKay Street, Pembroke, Ontario	Fitzgerald and White Townships	1969	Re-iss
September 8/67	Arrow Timber Company Limited, Box 1210, Hearst, Ontario	Fushimi and Bannerman Townships	1971	New
September 8/67	Armand Duval, R.R. #1, Rutter, Ontario	Blair and Mowat Townships	1970	Re-iss
September 8/67	Whitman Lumber Company Limited, North Bay, Ontario	Jocko, Eddy and French Townships etc.	1976	New
September 20/67	Herbert Noik Lumber Company, 526 Esther Street, Pembroke, Ontario	McKay and Petawawa Townships	1969	Re-iss
September 27/67	Howard Smith Paper Mills Limited, 2240 Sun Life Building, Montreal 2, Que.	Cameron, Papineau and Boyd Townships etc.	1972	Re-iss
September 27/67	Adam and Arpin 261 Pitt Avenue, Dryden, Ontario	Unsurveyed Territory — Kenora District	1971	New
September 28/67	Herb Shaw and Sons Limited, 137 McKay Street, Pembroke, Ontario	Niven and White Townships	1969	Re-is:
October 5/67	Consolidated Paper Corporation Limited, Pembroke, Ontario	Fitzgerald and Deacon Townships	1970	New
October 5/67	Pembroke Lumber Company Limited, P.O. Box 201, Pembroke, Ontario	White and Fitzgerald Townships	1969	New

ROWN TIMBER LICENCES continued

te	Licensee	Location	Expiry March 31st	Type of Transaction
tober 19/67	Kimberly-Clark Pulp and Paper Limited, 2 Carlton Street, Toronto 2, Ontario	Unsurveyed Territory — Thunder Bay District	1988	Re-issue
vember 1/67	Chantier Co-operative de Barker, Val Rita, Ontario	Barker Township	1968	New
vember 6/67	Odorizzi Lumber Company Limited, Golden Valley, Ontario	Hardy, Pringle and Mills Townships	1972	New
vember 6/67	Cochrane Enterprises Limited, Cochrane, Ontario	Avon and Homuth Townships	1968	New
vember 6/67	Thomas J. Newman, Palmer Rapids, Ontario	Carlow, Mayo and Brudenell Townships etc.	1975	Re-issue
vember 8/67	Gordon A. Stoughton, Calabogie, Ontario	Brougham and Blithfield Townships etc.	1971	New
vember 8/67	William Rothenburger, 489 Lyon Avenue, Port Arthur, Ontario	Hardwick, Robbins and Jean Townships	1969	Re-issue
vember 8/67	Herb Shaw and Sons Limited, Box 515, Pembroke, Ontario	Bronson and Stratton Townships	1969	New
vember 8/67	Joseph D. Levesque, Box 460, Hearst, Ontario	Shannon Township	1971	New
vember 14/67	Isabelle Brothers, Opasatika, Ontario	Sankey Township	1970	New
vember 14/67	A. & L. Lafreniere Lumber Limited, Chapleau, Ontario.	Busby Township	1968	Re-issue
ember 14/67	Chapleau Lumber Company Limited, Chapleau, Ontario.	Lloyd Township	1968	Re-issue
ember 23/67	Timber Framing and Treating Co. Limited, 174 Larch Street, P.O. Box 364, Sudbury, Ont.	Leeson and Stover Townships	1970	New
ember 29/67	McLeod Bros., Leeburn, Ontario.	Chesley Additional and Aberdeen Additional Townships	1970	Re-issue
ember 4/67	Northern Forest Products Limited, P.O. Box 990, Port Arthur, Ontario.	Unsurveyed Territory Thunder Bay District	1968	New
ember 4/67	J. H. Normick Ltee, La Sarre, Quebec.	Sargeant Township	1968	New
ary 3/68	Seine River Tourist and Timber Limited, Laseine, Flanders, Ontario.	Unsurveyed Territory Rainy River District	1970	New
ary 3/68	Frederick F. Gorr, Plevna, Ontario.	Miller and South Canonto Townships	1971	Re-issue
ary 3/68	Douglas R. Andersen, P.O. Box 1719, Dryden, Ontario.	MacFie Township	1968	New
lary 3/68	Alex Jaman, Box 1495, Atikokan, Ontario.	Unsurveyed Territory Rainy River, Ontario	1970	New

CROWN TIMBER LICENCES (continued,

Date	Licensee	Location	Expiry March 31st	Typ Transa
January 8/68	T. G. Fleron Limited, Thessalon, Ontario.	Haughton Township	1971	New
January 8/68	Rogerson Lumber Company Limited, Port Loring, Ontario.	McConkey Township	1969	New
January 16/68	James Gibson, 215 Mercury Avenue, Box 433, Atikokan, Ont.	Atikokan Township	1970	New
January 16/68	Ernest Peters, R.R. #2, Fort Frances, Ontario.	Bennett Township	1969	Re-is
January 16/68	Consolidated-Bathurst Limited, Box 68, Portage Du Fort, Quebec.	Bronson and Stratton Townships	1970	New
January 29/68	Orval Lougheed, Keewatin, Ontario.	Rudd Township	1971	New
January 30/68	Henry Selin Forest Products Ltd., Hearst, Ontario.	McFarlan Township	1968	New
January 30/68	Domtar Limited, 2240 Sun Life Building, Montreal 2, Quebec.	Townships 2A and V	1972	New
February 6/68	Henry Swanson, Box 1290, Cochrane, Ontario.	Beniah Township	1968	New
February 6/68	A. Lecours and Sons Limited, Hearst, Ontario.	Unsurveyed Territory Cochrane District	1970	New
February 7/68	Frank Peterson, Box 358, Kenora, Ontario.	Unsurveyed Territory Kenora District	1970	New
February 19/68	Jamar Plywood Limited, P.O. Box 998, Kirkland Lake, Ontario.	Jessop, Jamieson and Robb Townships, etc.	1968	Nev
February 19/68	M. J. Morrison, R.R. #2, Kenora, Ontario.	Pelican Township	1971	Nev
February 20/68	Leonard Angus, R.R. #1, Devlin, Ontario.	Unsurveyed Territory Rainy River District	1970	Nev
March 4/68	Rudolph McChesney Lumber Co. Ltd., P.O. Box 150, Timmins, Ontario.	Reeves Township	1972	Nev
March 6/68	Weldwood of Canada Limited, P.O. Box 247, Islington, Ontario.	Townships 3H and 202	1973	Re-i
March 25/68	Grant and Wilson, Swastika, Ontario.	Burt Township	1970	Re-i





PARTMENT OF NDS AND FORESTS





TO HIS HONOUR,
The Lieutenant-Governor.

of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR

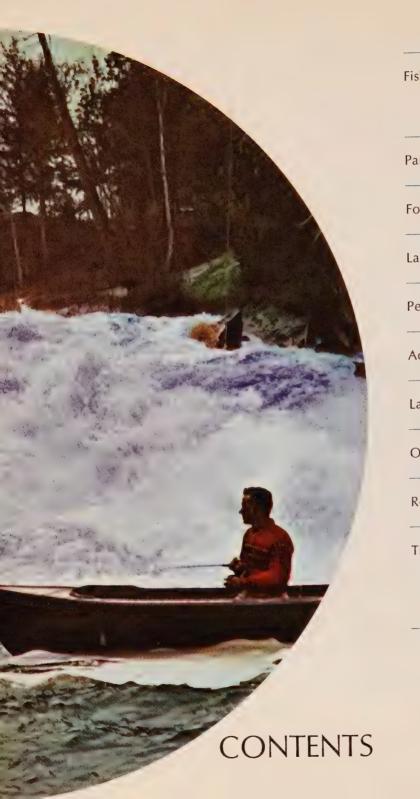
The undersigned begs respectfully to present to your Honour, the Annual Report of the Department of Lands and Forests for the fiscal year beginning April 1st, 1968, and ending March 31, 1969.



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RENE BRUNELLE Minister

NNUAL FPORT



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Timber Section

FOREWORD

The Annual Report presents a review of the past year's activities of the Department of Lands and Forests within a functional Branch framework. Additional detail is provided in "Statistics, 1970" which is released concurrently.

The interrelationships between the Department's many activities and its over-all aim is implied in the Department's goal statement:

To encourage on private lands and waters, and to provide from Crown lands and waters, a continuing combination of renewable resource production and outdoor recreation opportunities most consistent with the social and economic well-being of the people of Ontario

The term "renewable resource production" refers to the non-agricultural production of plants and animals for commercial purposes. Examples are timber, fish (commercial catch), and fur.

The term "outdoor recreation opportunities" refers to all recreational pursuits, usually associated with the natural environment, which contribute to the physical health and mental well-being of the participants, the term is interpreted broadly to include cultural activities concerned with the understanding of natural history and the Ontario environment through observation and scientific study.

The term "continuing combination" is particularly important since it refers to the multiple use of renewable, natural resources and their custody for future generations, and the concomitant management of the environment.

The concept of multiple use, or integrated resource management, is basic in meeting man's needs. Our land and water resources are limited, but the demand for a wide variety of goods and services is increasing each year. Accordingly, consideration of the single-use concept is becoming increasingly difficult.

The term "continuing" implies the concept of stewardship or future generations. It also refers to the Department's deep interest in the principles of ecology and their application in the management of the natural environment.

The Department is developing more specific objectives which are under review. As presented below, they state the objectives preferred at this time.

RESOURCE ECONOMIC DEVELOPMENT

To encourage on private lands and waters, and to provide from Crown lands and waters, the optimum, continuing contribution of renewable-resource production industries to the economy of Ontario and its communities.

OUTDOOR RECREATION

- (a) To provide opportunities for a wide variety of outdoorrecreation experiences, oriented to day use, accessible to, and for the benefit of, all the people of Ontario.
- (b) To provide on an economically sound basis, opportunities for the enjoyment of outdoor-recreation experiences on an overnight or extended-use basis.
- (c) To provide continuing outdoor recreation opportunities for tourism to benefit the economy of Ontario and its communities.



ORGANIZATION CHART

MINISTER OF LANDS AND FORESTS Hon. RENE BRUNELLE

R. L. Kertson

DEPUTY MINISTER G. H. U. BAYLY

CHIEFS OF HEAD OFFICE BRANCHES

ACCOUNTS FISH AND FOREST LANDS AND LAW OPERATIONS PARKS PERSONNEL RESEARCH TIMBER WILDLIFE PROTECTION SURVEYS

R. R. MacBean Dr. C. H. D. Clarke W. T. Foster R. G. Code

G. H. Ferguson G. A. Hamilton P. Addison J. M. Taylor Dr. W. R. Henson A. J. Herridge

ASSISTANT
DEPUTY MINISTER
R. D. K. Acheson

NORTHWESTERN REGION REGIONAL DIRECTOR PORT ARTHUR L. Ringham NORTHEASTERN REGION REGIONAL DIRECTOR SUDBURY J. W. Lockwood SOUTHERN REGION REGIONAL DIRECTOR MAPLE J. W. Giles

ONTARIO
FOREST TECHNICAL SCHOOL
R. W. Hummel, Director

REGIONAL FORESTER & PARK SUPERINTENDENT ALGONQUIN PARK T. W. Hueston



Fish and Wildlife Branch is divided into two sections and their subordinate units with duties and responsibilities as follows.

WILDHEF

- Game Management: Maintenance and increase of game abundance through improvement of habitat, regulations, inventory of game numbers, measure of participation by hunters, establishment of public hunting areas; and development of agreement with landowners to provide improved game habitat and hunting opportunities.
- Fur Management: Biologically sound management of furbearing animals; counselling of trappers to assist them in achieving the highest economic returns for their furs; regulations; stocking of animals in depleted areas; and licensing of fur farms.
- Field Services: Enforcement of the hunting and fishing regulations; development of training programs for conservation officers related to law enforcement; development of programs to secure the co-operation of the public in observing regulations; and conduct of hunter examinations.

FISHERIES

- Sport Fisheries and Hatcheries: Planning, co-ordinating and stimulating programs to maintain, develop and expand the Province's sport fisheries through habitat improvement, regulations, inventory of fish populations, measurement of angler activity and angler harvests, development of provincial fishing areas, providing information, production of hatchery stock and assessment of its effectiveness, distribution of fish, and stimulation of commercial hatchery and private fish pond development.
- Commercial Fisheries: Planning and co-ordinating programs based on sound biologic, social and economic bases for the optimum commercial utilization of the Province's fishery resources; issuing licences; collection of statistics (both biologic and economic) on commercial harvests of fish; regulation of harvest through seasons, quotas, gear restrictions and other means; and the development of programs to assist and stimulate industry in catching, processing, handling and marketing of fish.
- Fisheries Inventory: Inventory of the waters of the Province; organization and co-ordination of the field programs; and implementation of data processing systems to utilize inventory information for biologic, economic and other uses.
- •Indian Resource Development: Administration and coordination of resource program of fisheries, wildlife, forestry, recreation, etc., under the Federal-Provincial Resource Development Agreement; and development of programs for Indian use of resources.

WILDLIFE SECTION DEER HUNTING AND MANAGEMENT

The deer management program in Ontario aims at 1) maintaining a satisfactory deer population for hunting and viewing, and 2) promoting full use of our deer as a natural resource. We do not guarantee that hunters will get their deer. Unfavourable weather during the hunting season may still frustrate the hunters. This was the way it went in southern Ontario in 1968.

The first three days were dry and warm through most of the southern Ontario deer range. This made it difficult for hunters to find and approach deer. Then came the floods in some areas and snowbanks in others. Few hunters moved from their cabins. Those who ventured forth despite the bad weather found little sign of deer; apparently the weather caused the deer to remain in sheltered places, too. At the end of the first week, when hunters were leaving their camps, the deer started to move, and there were tracks everywhere.

The second week was considerably better as evidenced, for example, by the data from Arnprior checking station. Hunter success there was only 11% the first weekend, but on the second weekend it doubled to 22%.

Hunters in Pembroke Forest District were relatively well satisfied although over-all success was a little below last year, (14.5%, compared with 16.2% in 1967). They saw plenty of deer signs, and the percentage of fawns remained high at 33%.

Farther south in Kemptville Forest District, hunter success was down slightly. In Tweed Forest District, it was much poorer. Snow depths in northern Tweed District were six to eight inches, and the wet snow clung to bushes and trees making hunting difficult and uncomfortable. The result was a drop in success during the first week from 26.4% in 1967 to only 15.8%. However, here, too, the percentage of fawns was high (32.7%) and there was no evidence of deer shortage.

As usual when hunting conditions are difficult, casual hunters were hit much harder than those in organized camps. The latter knew their areas well enough to get some deer in spite of the weather, but the casuals had a hard time finding any. In Lindsay Forest District, the success at checking stations dropped from 22.4% in 1967 to only 11.2%, while results from the hunt camps showed only a moderate decrease from 42.6% in 1967 to 32.5%.

The Parry Sound Forest District hunting was moderately good. Rain occurred over most of the district rather than snow as farther east. At 22.2%, hunter success was considerably lower than in 1967 (34.2%) but above 1966 (19.2%).

On the Bruce Peninsula, the hunt was very similar to that of 1967. Hunter success was 10.5% in 1967, 10.3% in 1968.

Hunting was no better farther south or farther north. In the farming areas, the warm dry weather during the first three days made hunting very difficult. At Sault Ste. Marie, these warm conditions continued through all but two days of the two-week season. The result was much poorer success than in the last two years, but here again about one-third of the deer were fawns, indicating a healthy herd. At North Bay, the first week was wet, and the ground was covered with frozen snow during the second week. The result was very poor success. Sudbury mainland was similar.

On Manitoulin Island, hunter success (23.0%) was down about the level of the other eastern areas. The setting of the season two weeks later won approval from most people.

Few data are available from northwestern Ontario since difficulties, encountered with the newly introduced computerized mail survey, delayed the final report. A sample of 851 hunters checked at Kenora had an improved hunter success of 49.4% compared with 38.9% in 1967. On the other hand, only 98 deer passed through the Red Lake Road checking station in 1968 compared with 132 in 1967.

Given reasonably good hunting weather in 1969, hunting should be better throughout the eastern deer range. In northwestern Ontario, hunting will be good in the Kenora area, but poorer than normal around Sioux Lookout and Fort Frances because of the mortality resulting from deep snow last winter.

DEER RANGE MANAGEMENT

To provide browse in the vicinity of traditional wintering areas is one of the main purposes of the deer range management program. Winter food is the single, most important factor determining the survival of deer from year to year in much of Ontario. The critical time is when deep snow on the ground limits the activity of the deer to travel in search of browse. In mild winters, the greater availability of the food supply leads to greater reproductive success. In severe winters, browsing possibilities are more limited, and even plentiful browse may not be as effective in producing a good fawn crop, though it helps to reduce mortality among the wintering animals.

If cover is left, logging usually contributes to the development of range. In tall forests with closed canopies, there is little food for deer since shrubs and other regeneration are imited. In many localities, decreased logging makes deer unting more and more dependent on improvements brough the deer range management program.

This program has been greatly expanded in the past three years as indicated by the number of acres treated. In the vinter of 1966-7, 225 acres were cut to supply browse. This was increased to 2,260 in 1967-8.

In 1968-9, 3,350 acres were treated in nine forest districts, and this had the effect of improving wintering possibilities over some 130,000 acres of winter range. In summer, deer will range over an area about 10 times as large; it is thus clear that considerable hunting range is now benefitting. The cost was \$184,500. We intend to continue treatment on his scale to assure the survival of many more deer for the use and enjoyment of the people of Ontario.

When old conifers disappear, deer will disappear with hem. Measures are now being developed to increase and nanage the type of coniferous stands that deer need for vinter shelter. It is expected that a planting program, to establish such a cover, can be undertaken on a meaningful cale in 1973.

Successful hunters weigh moose at Red Lake Road checking station, Sioux Lookout Forest District.



BROWSE PRODUCTION (acres), 1968-9

Forest District	Net Area Treated	Winter Range Affected
Sault Ste. Marie	169 acres	4,500 acres
Sudbury	219	5,000
North Bay	447	19,000
Parry Sound	410	6,900
Pembroke	1,138	70,000
Lindsay	552	13,100
Tweed	386	3,300
Lake Simcoe	13	200
Lake Huron	17	7,600
TOTAL	3,351 acres	129,600 acres

MOOSE HUNTING AND MANAGEMENT

Ontario's moose management program aims at providing 1) a moose population as large as can be reconciled with timber production and forest management in general, and 2) as much hunting and viewing as the population will sustain. We are constantly seeking ways to improve our collection of data for a management program cannot be sound unless it is based on accurate information.

For the first time, in 1968, a computer was used to assist in the annual, mailed survey of moose hunters. The many difficulties involved in this new method have delayed production of a final report. Despite the delay, we are convinced of the value of this type of survey because 1) a great workload has been lifted from district staffs which previously had to handle all the questionnaires by hand, and 2) it allows the collecting of information which could not be handled otherwise. Although statistics concerning the 1968 moose hunt are still fragmentary, those we have suggest that, as with deer hunters, weather was the greatest obstacle to moose hunters. For some reason, hunting by boat or canoe is never as effective when water levels are high, and water levels were at record heights during the fall of 1968. In addition, weather in northeastern Ontario was so mild and rainy that it seemed more like summer time than moose hunting weather. This apparently reduced the response of moose to "calling". This was not so much the case farther

In spite of the difficulties, many hunters were successful, and success rates varied from slightly below normal in Sioux Lookout to slightly above normal in Port Arthur. In

northeastern Ontario, there did not appear to be much change from the success during 1967.

Checking stations at heavily hunted areas continued to show that moose are standing up well to the hunting pressure. For example, the harvest of moose on the Black Sturgeon Road, Port Arthur Forest District, from 1963 to 1968 has been 265, 254, 265, 228, 208, and 237, respectively, based on a four-week sample for the first three years and two weeks for the last three. There has been no significant decrease in moose numbers on this heavily hunted area or the numbers taken each year would have decreased.

Additional evidence involves the sex ratios of moose shot. If hunting were affecting the herd, we would expect that each year there would be a lesser proportion of bulls in the kill, simply because hunters had removed so many from the herd. At Black Sturgeon this year, instead of a smaller percentage of bulls, 75 per cent of the adults killed were males. Similar sex ratios are reported each year across northern Ontario.

This year, for the first time, we were able to obtain evidence that this continual selection for bulls does have some effect on the moose herd. During December, light aircraft were used to find as many moose as possible and classify them as bulls, cows or calves. We chose December for this work because most bulls still have antlers and calves are small enough to be distinguished from older moose. In Fort Frances Forest District, the survey was both inside Quetico Provincial Park, where there has been no hunting for many years, and in a similar type of habitat outside where hunting occurs. Results showed that inside the park, bulls constituted 56.9% of all adults, but outside only 41.5%. Similar data were obtained elsewhere, suggesting that our present hunting seasons result in fewer cows being harvested than would be expected. Probably, this small surplus of cows is helpful in maintaining good breeding stocks.

For the first time in three years, a moose season was opened south of the French and Mattawa rivers. The wait was worthwhile since this was the best moose hunt in the south for many years with over 700 moose taken. About 500 were shot in Parry Sound Forest District alone. It appears that this kind of occasional open season is best for this heavily hunted, easily accessible area.

The issuing of crests in return for moose jaws continued as an unqualified success. There was another 25% increase in the number of jaws received in 1968; the total was over 4,000, double the number collected in 1966, the last year before crests were introduced. From these jaws, the ages of the moose are determined. Good reproduction and reasonable harvest rates in most northern districts were demonstrated.

Prospects for next year are good throughout northern Ontario if the weather is suitable for hunting. A few cool sunny days and crisp clear nights near the first of the season are most desirable. There will not likely be another season in southern Ontario for a year or two. The moose population continues to hold up well, but the increasing noise and disturbance from more hunters each year is making moose more difficult to find near roads. The wise moose hunter gets back-in.

BEAR HUNTING AND MANAGEMENT

Bear Management aims at reducing the wasteful shooting of bears, merely because they are a nuisance, and promoting more positive uses such as sport hunting and observing. It was apparent from the most extraordinary increase in bear licence sales in 1968 that this approach is successful. The sale of non-resident spring bear licences nearly doubled from 4,872 in 1967 to 8,333 in 1968. In addition, resident spring bear licences increased from 964 to 1,142. Since the sale of bear licences was the highest on record in 1967, this doubling of licence sales is indeed striking.

Obviously, bear hunting is gaining rapidly in popularity. Reports of very high numbers of bears during the previous summer may account for some of this increase. Another important factor is the high success rate which actually improved in 1968 in spite of higher numbers of hunters. In 1967, over-all reported success was 41.7%, but in 1968 it increased to 48.3%. This approach to bears, as a natural resource worthy of use, is much to be preferred to the shooting of bears at garbage dumps.

The northeastern region of Ontario is by far the most favoured for spring bear hunting. In 1968, 71.2% of the 1,571 non-residents reporting and 62.1% of the 124 residents reporting hunted in northeastern Ontario. Only 25.1% of the non-residents and 16.9% of the residents hunted in northwestern Ontario. It is perhaps surprising that as many as 3.7% of the non-residents and 1.2% of the residents hunted in southern Ontario.

One of the interesting facts to emerge from our increasing knowledge of bear hunting is the very high ratio of adult males to adult females shot by hunters. In 1968, the ratio among adults was 194 adult males per 100 adult females. Since we expect a 1:1 sex ratio, there may be a strong hunter selection for males.

The best time for bear hunting is during the last week o May and the first week of June. Prospects are that bea hunting will continue to be good but, perhaps, due to

natural fluctuations in the numbers of bears, some annual variation is to be expected.

UPLAND GAME MANAGEMENT

Management objectives for upland game include the provision of regulations which will enable hunters to make maximum use of resident small game species, several of which are traditionally under-harvested; to encourage the use of woodland and upland management practices which increase small game production; and to provide the public with sound predictions relative to the annual availability of small game.

RUFFED GROUSE

The year 1968 was not a good year for ruffed grouse although much "leaner" hunting years are on record. An excellent grouse season was enjoyed in many northern districts in 1967. Extremely cold, wet weather, which set all-time records for some areas during the critical brooding period in the following late May and June, lowered the survival of grouse chicks across most of the Province. Two-thirds of the forest districts reporting indicated a much lower than usual ratio of young to old birds taken by hunters.

Lower hunter success was reflected in bag check information; the average number of grouse shot per 100 hours by hunters on foot across the Province was 47, 46, and 32 for 1966, 1967 and 1968, respectively. Similarly, the average number of birds shot per hundred miles given by those hunting along bush roads was 6.5, 9.4, and 4.9, respectively.

On the strength of brood observations before the season, most districts predicted lower hunter success for autumn, 1968.

SHARPTAILED GROUSE

For the second consecutive year, northern sharptailed grouse migrated from the lowlands of James and Hudson Bays into more settled portions of northern Ontario. The season on this species was extended until March 31st, and this produced additional hunting recreation. Birds are not as abundant as in the winter of 1967-8, however.

RING-NECKED PHEASANTS

Ontario winters limit the breeding distribution of pheasants to a relatively narrow fringe of range north of Lake Erie and the western margins of Lake Ontario. Areas which consistently receive much over fifty inches of snowfall per season support few, if any, ring-necks.

Across the breeding range, hunting success has varied in recent years, and research is underway to determine why some areas support better pheasant numbers than others. The 1968 season was much improved in several counties. The Lake Simcoe Forest District reported the best success since 1963, and hunters bagged just under one bird per day for the complete season. Opening day hunters in the Lake Huron district also had slightly better success, both in birds taken per hunter and in lower effort required to bag a bird. Hunter success was also improved in Essex County, although it was still poorer than in areas to the east within the pheasant range.

In 1968, a count of crowing cock-birds in spring was initiated on transects throughout the pheasant range. This survey is designed to show trends in pheasant breeding populations and will be continued on a yearly basis.

The Department continued to propagate pheasants for release, both on private lands and on public hunting areas. Chicks and poults were provided to regulated townships for release prior to the season from the Provincial Game Bird Farms at Normandale and Codrington. Production in 1968 comprised 41,000 chicks, 14,400 poults, and 6,500 adults. Returns to the hunter from five-, to seven-week-old poult releases have been consistently low. Rearing pheasants for release just prior to the season puts a very much larger percentage of birds in the bag, and this practice is being encouraged.

Giant Canada goose on tub nest, Lake St. Lawrence goose management area.



HUNGARIAN PARTRIDGE

It was a good year for Hungarian partridge, particularly in the eastern counties of Dundas, Stormont, Prescott, Russell and Carleton. Kemptville district staff tallied 367 gun days of hunting and 1,049 Huns for an average of 2.9 birds per gun day. This compares with 2.8 and 2.2 birds per gun day for the 1967 and 1966 seasons, respectively.

Hungarian partridge were live-trapped in the Ottawa area again during the 1968-9 winter, and 56 were traded to Michigan in return for fox squirrels which will be introduced into Lambton County. Attempts to propagate partridge at the Codrington Game Bird Farm continued, but results in 1968 were disappointing.

RABBITS AND HARES

The cottontail rabbit, the European hare (or jack), and the snowshoe or varying hare produce a considerable amount of hunting recreation. Cottontail rabbits and jacks were in reasonably good supply over most of the range in southern Ontario in 1968. A total of 3,559 hunters, checked in Lake Huron and Lake Simcoe districts, averaged approximately 6.3 hours of hunting for each rabbit or hare taken in 1968. This compared with almost seven hours of hunting required the year previously.

WOODCOCK

The American woodcock is a much overlooked game species in Ontario, hunted by comparatively few dedicated hunters. Good numbers of woodcock are produced in Ontario, but relatively little is known concerning relative breeding densities across the Province. In 1968, Ontario participated in a survey of breeding woodcock which was co-ordinated throughout eastern North America by the United States Fish and Wildlife Service.

Little information on woodcock hunting for 1968 is available. Twenty co-operating hunters in the Lake Simcoe district reported a season kill of 369 woodcocks during 381 man-hours of hunting for a season average of 18.5 birds per hunter, and a hunting effort of slightly more than one hour per bird bagged. This may be compared with an average season bag for 36 hunters of 11.1 birds in 1967.

RACCOONS

Raccoons are gaining the attention of more hunters each year. "Coon" hunting with hounds at night under the authority of a raccoon licence, available from Department offices only, is more popular than many people realize. In 1968, 1,050 raccoon hunting licences were sold across southern Ontario. Raccoon populations are high, and this was reflected in hunter success in Lake Simcoe and Lake Huron districts where 242 hunters reported 4,484 raccoons harvested, or 18 per hunter, in 1967.

COYOTES

There has been a general increase in coyotes or brush wolf populations in agricultural southern Ontario, and many "hound men" are taking advantage of some excellent sport and are also collecting bounties. Of 892 coyotes taken during 1967 in the six most southerly forest districts, 549, or over 60%, fell to the shotgun or rifle. The figure includes a few wolves killed in the northern parts of Tweed and Lindsay districts.

GREY SQUIRRELS

Grey squirrels provided reasonably good hunting in south-western Ontario, the only area in the province with a squirrel hunting tradition. Black squirrels, a colour phase of the grey, become progressively more common as one moves from south to north in southern Ontario; they are extending their range northward in the Precambrian Shield and they are more abundant than usual in south-centra and eastern Ontario. They are an excellent, but largely neglected, game animal in the Province.

WATERFOWL MANAGEMENT

Waterfowl management objectives in Ontario include the maintenance of populations at or near levels which occurred in the 1955-8 period, and the provision of sustained quality recreation for hunters and non-hunters alike.

Waterfowl hunting remained extremely popular in Ontario, and 139,182 Federal Migratory Bird Hunting Permits were sold in the Province for the 1968 season. This total was more than that of the three Prairie provinces combined and almost 40 per cent of the national total.

The 1968 waterfowl season was not as successful as during the previous years, and very mild "bluebird" weather made ducks difficult to hunt. In addition, a poor production year of blue and snow geese in the high Arctic markedly lowered success on James and Hudson Bays.

Opening-day duck hunter success was good, averaging approximately one bird per hunter in southern Ontario and as high as 1.7 birds per hunter in local areas of northern Ontario. Duck hunting later in the season was not nearly a productive. Federal surveys indicated the average bag pe successful hunter fell from 11.0 in 1967 to 9.8. The proportion of the various duck species taken by Ontario hunter remained similar to that of the previous year, with mallards blacks, wood ducks, green-winged teal, blue-winged teal and ring-necked ducks making up almost 80 per cent of the total harvest.

Although continental populations of Canada geese cortinue to rise, there are few opportunities to hunt thes

trophy birds in many areas of the Province. The local breeding populations of giant Canada geese on the St. Lawrence Management Unit continued to increase and larger numbers of migrants used the St. Lawrence area. Goose hunting in the eastern counties continues to improve with each passing year.

Leg-banding of waterfowl continues to be an important management technique in following trends and populations, where, unlike western Canada, aerial and ground surveys cannot provide good information on important forest nesting species such as the black and wood duck. Almost 9,000 ducks and 283 Canada geese were banded by the Department of Lands and Forests in association with private co-operators at 35 banding stations across the Province in 1968.

Few Canada geese nest in southern Ontario. A program to establish the giant Canada goose, a southern-breeding race, in southern Ontario was begun in 1968 in association with the Ontario Waterfowl Research Foundation at Guelph. Over 200 goslings were reared in 1968, and most will be released when they are two and three years of age in a special pilot study area comprising Wellington and Waterloo Counties and five adjoining Townships in Grey, Dufferin and Brant Counties. Larger numbers of geese will be raised in the next few years. If the establishment program meets with success, it is expected that releases of breeding stock will be extended to include other areas of the Province.

PROVINCIAL HUNTING AREAS

In the Provincial Hunting Area program, the primary goal is to provide a place to hunt in areas where hunting opportunities have become most restricted and the need for public hunting ground is most urgent. A high-quality hunting experience is another goal. A third objective is to create a public awareness of the value of wildlife in modern society.

The need for public hunting grounds is greatest within day-use range of the major centres of population in southern Ontario. There are lands better suited for wildlife management than other uses within the range of these centres, but a southwestern Ontario there is a minimum of public land with public access assured for the future.

Marshlands are among the most productive lands suitable for wildlife. Through proper habitat manipulation techniques, the productivity and attractiveness of wetlands can be improved for waterfowl, furbearers and other aquatic pird and animal life. At the same time, opportunities for the teneral public to view wild creatures in their native environment can be provided in such habitat.

Acquisition of marshlands in southern Ontario is an important program; as indicated in the accompanying table, ten of the 21 land acquisitions are wetlands.

LANDS ACQUIRED FOR WILDLIFE PURPOSES, 1962-9

Area	County	Acres	Acres 1968-9
Tiny Marsh	* Simcoe	2,246	150
Angle Ditch Marsh	* Bruce	200	
Luther Marsh	* Dufferin	919	40
,	* Simcoe	925	194
Johnston Harbour	Bruce	4,204	
Dept. Highways — Transfer	various	1,062	
Aylmer Airport	Elgin	555	
Fingal Airport	Elgin	780	
	* York	188	
Holland Marsh	* Simcoe	375	375
Brighton	Northumberland	622	72
Kendal	Durham	650	
Murray Marsh	* Northumberland	1,598	
Charlottenburg	Stormont	258	
Millbrook	Durham	188	188
Dalton	Victoria	100	100
Gananoque	Leeds	1,046	
	* Dundas	3,600	
	* Norfolk	90	
Nonquon River *	Ontario	2,138	43
MacCauley Twp	Muskoka	1,220	
TOTAL		23,064	1,162

^{*}Wetland Projects

PHEASANT HUNTING AREAS

Pheasants were released in good cover in numbers according to demand on five hunting units in Provincial Parks this year. In 1968, 3,049 man-days of pheasant hunting were enjoyed in the field. This program has provided hunting in areas where normally this recreational pastime would not occur since four of the five units are outside the native pheasant range.

Of the 6,066 pheasants released at five Provincial Parks and the Gananoque Provincial Hunting Area, a limited num-

PROVINCIAL PHEASANT HUNTING AREAS, 1968	Presqu'ile	Darlington	Sibbald Point	Earl Rowe	Point Farms
Hunting Area (acres)	415	380	450	425	600
Hunters	372	910	904	685	178
Pheasant Released	708	1525	1425	1016	92
Pheasants Released/Hunter	1.9	1.7	1.6	1.5	.5
Pheasants Harvested	552	1337	1263	898	78
Pheasants Harvested/Hunter	1.5	1.5	1.3	1.3	*.4

^{*}Bird/hunter low because of the experimental, limited release of pheasants at Point Farms Provincial Park this year.

ber of pheasants were stocked in good cover at Tiny Marsh in Simcoe County and the Brighton property in Northumberland County to provide opportunities to hunt pheasant outside its natural range.

PROVINCIAL WATERFOWL HUNTING AREAS

Five waterfowl management units within Provincial Parks were in operation again this year to provide the public with reasonably good hunting opportunities for ducks and geese.

Only minor changes in the hunting regulations were in effect this year. For example, shooting hours at Long Point, Rondeau and Darlington were changed from 7:00 a.m. to 5:00 p.m. to permit hunting only from one-half hour before sunrise to one hour before sunset. This earlier closing of the management unit permitted hunters leaving the marsh to do so before dark.

PROVINCIAL WATERFOWL HUNTING AREAS, 1968

Name of Area	Acres		Seasonal Permits Sold (Zone B)
Long Point	1,750	2,004	121
Rondeau	9,200	924	304
Darlington	380	517	
Presqu'ile	2,170		517
Holiday Beach	262		633

Name of Area		No. Waterfowl Harvested	Average Bag per Hunter
Long Point	 244	1,419	.7
Rondeau	 188	170	.7
Darlington		1,131	1.2
Presquile		341	1.8
Holiday Beach	4,136	736	.2 *

^{*}Bird/hunter low because sportsmen are concentrating on harvesting Canada geese.

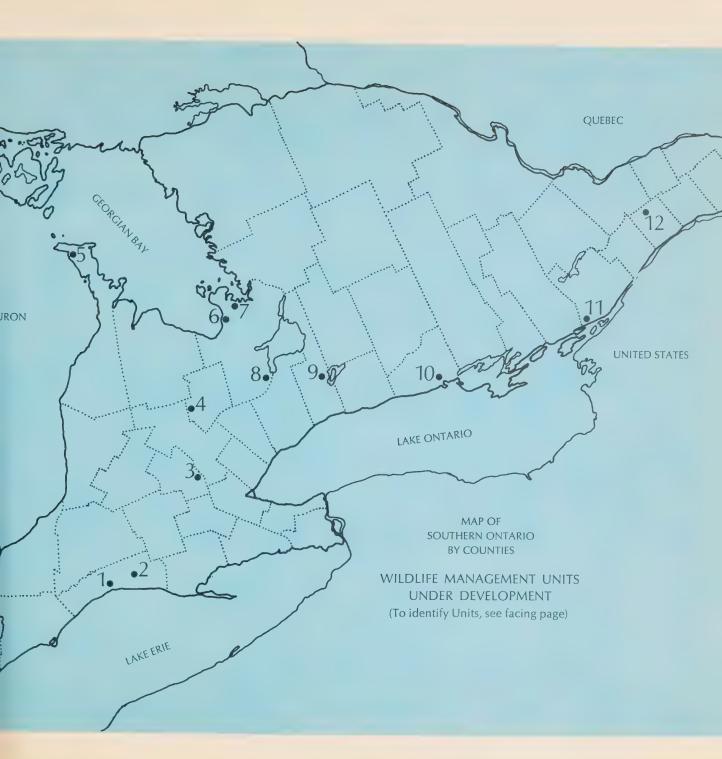
WILDLIFE MANAGEMENT UNITS UNDER DEVELOPMENT

Of the many land acquisition projects underway in Ontario for various purposes, 12 parcels of land, totalling 15,624 acres, are being actively developed to meet wildlife needs of adequate food and cover.

Aylmer Provincial Hunting Area, Elgin County. This 555-acre property was purchased from the Federal Department of National Defence in 1962. The Ontario Police College was established on 100 acres leaving 455 acres open to public hunting. The farmland was leased to local landowners who grew agricultural crops and kept the land under cultivation. In 1965 and 1968, small game management practices were started by constructing brushpiles for cottontail rabbits. Other habitat management techniques included planting 650 wildlife shrubs and 25,000 evergreen trees as a three-

Wildlife Management Units Under Development

- 1. Fingal Airport, Elgin County.
- 2. Aylmer Airport, Elgin County.
- 3. Puslinch Tract, Waterloo County.
- 4. Luther Marsh, Dufferin County.
- 5. Johnston Harbour, Bruce County.
- 6. Tiny Marsh, Simcoe County.
- 7. Wye Marsh, Simcoe County.
- 8. Holland Marsh, Simcoe County.
- 9. Nangnon River, Ontario County.
- 10. Brighton, Northumberland County.
- 11. Gananoque, Leeds County.
- 12. Winchester Bog, Dundas County.



row windbreak on the perimeter of the property.

Fingal Provincial Hunting Area, Elgin County. Purchased from the Federal government in 1965, this land is now being developed as a small game and waterfowl management area. A windbreak of 3,000 white cedar was planted in 1965. Since that time, 4,100 wildlife shrubs have been planted to provide food and cover for wildlife. A few pheasants were released to add to the variety of game on the property.

Puslinch Tract, Waterloo County. The parcels of land within the Puslinch Tract were transferred to this Department in 1965 by the Department of Highways after construction of Highway 401 was completed. The Puslinch Tract is 500 acres of Crown land jointly owned by Departments of Lands and Forests and Highways. It is being developed and maintained as a small game and waterfowl management demonstration area with the specific purpose of establishing habitat suitable for cottontail rabbit and ruffed grouse. Work completed, in 1967 and 1968 included constructing brushpiles for rabbits, cutting openings in mature hardwood stands, planting food and cover shrubs and trees, and increasing production of natural food species (wild grape).

Luther Marsh, Dufferin County. Most of the 920 acres in Crown ownership is located within the Crown Game Preserve at the north end of the marsh. The upland fields are being farmed to provide food crops for waterfowl. Management for lure crops on Crown Land is necessary to attract field-feeding waterfowl away from private land grain crops and thus reduce the extent of the damage. Food, cover and hedgerow plantings of 5,000 evergreen trees and 1,500 wildlife shrubs were completed in 1968. Also, fifteen potholes were constructed at the north end of the marsh using ammonium nitrate-fuel oil mixture. These water areas will provide additional nesting territories for ducks, particularly blue-winged teal.

Johnston Harbour Provincial Hunting Area, Bruce County. Of the 4,200 acres of Crown Land in this hunting area, the largest concentration of Crown lots is located near Willow Creek, St. Edmunds Township. Fishing and small game and deer hunting are permitted. Several parking lots were built in 1968.

Tiny Marsh Provincial Hunting Area, Simcoe County. Of the 2,300 acres included in this wildlife management area, there are 1,300 acres flooded, 350 acres in brush, and 650 acres of farmland. Work on construction of permanent control dams, and a by-pass drainage ditch for regulation of water level in Tiny Marsh, was completed on November 22, 1968. Crops of barley, oats, corn, sorghum and buckwheat were planted to attract waterfowl into upland fields. With capital development funds, two parking lots, one goose pond, one

observation tower, three information signs and one-half mile of internal road were constructed. Hedgerow development began with the planting of 1,500 wildlife shrubs. Wye Marsh, Simcoe County. At the present time, there are 890 acres in Crown ownership; however, no major development is planned for this wetland until the existing marsh is acquired by the Province. Development in 1968 was limited to the construction of one-quarter mile of road, a parking lot and a boat launching area.

Nonquon River Provincial Hunting Area, Ontario County. This river system in Reach Township which empties into Lake Scugog will be managed for waterfowl. Two dams will be built to create shallow water impoundments. At the moment, this project is still in the active land acquisition stage. Development in 1968 was limited to gravelling and grading three access roads to the edge of the wetland.

Holland Marsh Provincial Hunting Area, Simcoe County. Approval to begin land purchase of this wetland was granted by the Ontario Parks Integration Board in 1968. Up to March, 1968, 375 acres have been acquired. No habitat development was undertaken in 1968.

Brighton Provincial Hunting Area, Northumberland County. In 1965, 553 acres along Highway 401 were transferred to this Department by the Department of Highways. Since then, an additional 147 acres has been acquired to make a larger, more manageable block of land for upland game hunting. Initial development on this area included constructing one access road, one mile of fence and two ponds. Two larger fields were plowed for spring planting of permanent wildlife cover.

Gananoque Provincial Hunting Area, Leeds County. This 1,041-acre tract has been a public hunting area since 1963. A cutting operation in a mixed hardwood stand was undertaken in 1968 to improve habitat for ruffed grouse, woodcock and deer. Final plantings of 40,000 evergreen trees were made to provide winter shelter for grouse. In addition, 3,000 hardwood species and 2,451 wildlife shrubs were planted in hedgerows to break up large fields into smaller units. Pheasant holding pens were constructed off the area. Twelve ponds were made to increase waterfowl use of this area. In 1968, 1,300 pheasants were released, and 1,011 were harvested by 1,391 hunters. The hunters also harvested 17 ruffed grouse, 19 ducks, 9 woodcock, 1 Wilson snipe, 41 cottontail rabbits and 5 varying hare, a total harvest of 1,103 or 0.9 units of game per hunter.

Winchester Bog Provincial Hunting Area, Dundas County. This 3,600-acre tract of land was purchased in 1962. Since that time, access roads have been constructed in part of

the area. Wildlife habitat improvement has been started through the planting of white spruce as a windbreak around some of the fields in the south section of the property.

FUR MANAGEMENT

The objective of the fur management program in Ontario is to provide for an annual optimum harvest while ensuring the continued propagation of furbearer species throughout their respective ranges.

Strong market demand for wild fur pelts of all species during the 1968-9 season resulted in one of the most profitable seasons for trappers in a number of years. Harvest and price increases were reported on all species over the previous year.

Based on data obtained from the Ontario Trappers' Association fur sales service in North Bay, beaver, the major species in the wild fur harvest in Ontario, was in strong demand, resulting in an average price increase over 1967-8 of \$3.50. Beaver production totalled 164,888 pelts at an estimated value of \$3,325,000.00 to the Province's 8,049 licensed trappers.

Mink populations and harvests, which have been declining generally across the Province for the past eight years, increased significantly. There was a harvest of 28,464 animals, an increase of approximately 7,000 over the previous year. Sioux Lookout and Kenora were the only Districts in the Province reporting a slight decline in the harvest of this species.

The average price paid for fisher increased from approximately \$13.81 in 1967-8 to \$25.45 with a harvest increase of approximately 30%, from 2,189 to 3,536 animals.

In spite of the increased prices paid, particularly for beaver, areas continue to exist where the harvest is far below the existing potential. The Department moves efficient trappers into such sites from areas of lower production potential. This program has proven to be most beneficial to the trappers concerned and aids in the management of the species in that it maintains populations at levels compatible with the existing range.

No major disease outbreaks occurred in wild furbearers during the year.

Beaver continue to create flooding problems in some agriculture areas and cottage development sites, as well as along roadways in the sparsely settled areas of the Province. In an effort to alleviate the situation, intensive harvest practices are encouraged where these conditions exist.

During the fur season of 1968-9, royalty in the amount of \$215,102.55 was collected on a total of 686,296 pelts. The value of the pelts was \$4,161,541.00, an increase of \$813,168.00 over the previous season, covering a total of 705,943 pelts. A strong European market brought about the higher prices.

With the Ontario Trappers' Association fur sales service in North Bay now handling approximately 50 per cent of the wild pelts produced in Ontario, buyers from the United States, Europe and Quebec are being attracted, and the trappers are benefitting from strong, competitive bidding.

A total of 289 Fur Dealer's Licences were issued; of these, 219 were Resident Fur Dealer's Store Licences, 66 were Resident Travelling Fur Dealer's Licences, and four were Non-Resident Fur Dealer's Licences.

PREDATOR MANAGEMENT AND CONTROL

The function of the predator control unit is to assess the degree of depredation caused by wildfire predators. It also implements control programs in areas where it has been determined that their presence is detrimental to the domestic livestock industry or to maintaining desirable population levels of other wildlife species.

Department staff investigated 79 instances of predation on domestic and wildlife prey species. A total of 54 control programs were established. Farmers, who experienced depredation on domestic stock by wildlife predators, were assisted by Department officers in establishing control programs. As a result of these programs, 27 timber wolves, 40 coyotes, six bears and 12 dogs were removed from the problem areas.

Predator control training courses were conducted in the forest districts of Tweed, Kapuskasing, Fort Frances, Kenora, Sioux Lookout, Cochrane, Swastika, Sudbury, Lake Erie and Lake Huron. Fifty-six Department employees received onthe-job training. Extension training workshops, held in conjunction with these programs, were attended by 323 trappers and farmers.

During 1968, a total of 1,567 timber wolves, 1,643 coyotes and 29 hybrids were bountied in the Province. There was no appreciable change in the number of timber wolves bountied, compared with 1967; coyotes increased by 284 animals. There has been a gradual increase in the number of coyotes bountied since 1962. A similar increase occurred between 1943 and 1947 when they reached a peak of 1,182 animals and then decreased to 486, bountied in 1957.

Payment of bounty claims amounted to \$62,025.00 during the fiscal year, compared with \$59,089.00 in the preceding year.

FUR FARMING

The 1968 Canadian ranch mink pelt market opened with a spirited demand for dark and pastel types. The depletion of the supply of these two types (in the fall) stimulated the bidding at the early December sales which saw dark mink advance from 10 to 15 per cent and pastels from 15 to 20 per cent over 1967 prices.

While the demand for the lighter shades of mink was good, it was obvious that the trade was not prepared to exceed the price levels established last year. Sapphires were unchanged but pearls, violets, lavenders, hopes, Aleutians and whites showed declines of from five to fifteen per cent. These conditions prevailed through the January, February and March sales with slight price increases for darks and pastels and a firming of the demand for Aleutian and violet mink.

The Canadian sales were well attended with Canadian, American, West German and Italian buyers taking the bulk of the offerings. It was estimated that 95 per cent of the Canadian ranch mink crop was sold by the end of February. The reduction of the world ranch-mink crop by some four million pelts failed to produce the strong market for all types that was anticipated.

The depressed mink pelt market which prevailed in 1967-8, together with the high costs of production, particularly for labour, caused 74 Ontario mink ranchers to discontinue business. This represented a net decrease of 10,514 breeder mink which were actually pelted, or a 4.4 per cent decrease in the number of breeders kept as of January 1, 1967. Breeder mink, which were sold alive to other Ontario ranchers, were subtracted, thereby making this the net total decrease from ranchers discontinuing business.

For economic reasons and with a desire to reduce the overall production of mink pelts, the number of breeders kept on ranches in Ontario was reduced from 234,369 as of January 1, 1967, to 208,570 as of December 31, 1968, a decrease of 11 per cent. This reduction in breeding stock resulted in some 63,000 fewer mink pelts produced in the Province in 1968.

The 1968-9 season saw the new jet mink offered in sizeable quantities on the New York market. While the top bundle brought \$270.00 per pelt, the offering was not up to expectations and for the most part brought less than finequality darks. It was indicated that the colour was dark enough but the fur quality was lacking.

The new Kojah mink, a long-haired mutation, was introduced to the New York market for the first time and brought an average price of \$114.00 per male and \$68.00 per female. The promoters of this new type have hopes that

it will rival the Russian sable in popularity.

There was an upsurge in the demand for fox pelts as well as all long-haired wild furs. Large quantities of these types are being consumed by the trimming trade and in the manufacture of "fun" furs and sportswear.

Arrangements were made with a number of Ontario fox ranchers for the purchase of live foxes by Connaught Medical Research Laboratories to be used in experimental work. It is hoped that an oral vaccine for rabies in wildlife may be developed.

A total of 417 Fur Farmers' Licences were issued during the year. Of these, 404 were renewals and 13 were for newly established fur farms.

FIELD SERVICES

This unit is responsible for fish and game law enforcement programs and for providing in-service training opportunities for conservation officers and other Department staff charged with the enforcement of various statutes and regulations. In addition, records of seizures and convictions are maintained, and equipment seized as evidence is disposed of according to statute. Records of sales of hunting and fishing licences are now filed in a central licence registry to be used to solve both management and enforcement problems. The provincial hunting licence examination program is also a responsibility of this unit and through it an evaluation of the results of hunter safety training programs in reducing hunting accidents.

LAW ENFORCEMENT

The objective of fish and game law enforcement is to prevent violations. To ensure good fish and wildlife management, the public must be impressed with the need to obey the regulations. Where education and publicity programs fail, prosecution is necessary, and high standards of law enforcement are essential to successful prosecution. Through in-service law enforcement training courses, officers have become increasingly skilled and knowledgeable in handling their cases in court, and a lower rate of dismissals has been experienced.

Legislation and regulations provided under The Game and Fish Act, 1961-62, have been consolidated in summary form for public distribution with maps and explanations in simple terms. A Big Game Provisional Summary of seasons was provided in January as an aid to hunters who must set their vacation schedules in advance and to assist the tourist operator in preparing his brochures and accommodation arrangements.

A total of 900,000 copies of the regular hunting summary of the seasons and regulations for all species is published. This is sufficient for a copy to be issued with each hunting licence sold.

Consolidated office copies of The Game and Fish Act, 1961-62, and the Ontario Fishery Regulations are provided annually for use by conservation officers, other staff, lawyers, courts and the public.

Articles seized as evidence under The Game and Fish Act become the property of the Crown upon conviction. The Minister may grant relief from forfeiture where he considers the forfeiture would work undue hardship or injustice. Relief may be granted under conditions which he deems to be proper and just. Equipment retained is sold by public auction at annual sales. Two sales are held in northern Ontario and two in southern Ontario for fishing tackle each spring, and similarly in the fall for seized guns. The locations are changed annually. In the past year, \$20,384 was turned into the Provincial Treasury from these sales.

The training of conservation officers and others concerned with the enforcement of provincial and federal statutes is continuing, with a total of seventy-eight officers and other personnel receiving in-service training during the year.

HUNTING LICENCE EXAMINATIONS

The hunting licence examination has just experienced its first full year of operation, and in consideration of this being the first such program on the North American continent with few guide lines to follow, it was considered to be very successful. Some 22,474 persons applied for and took a hunting licence examination in 21 Forest Districts, as follows:

as follows:	
Lake Erie	3,178
Lake Huron	3,262
Lake Simcoe	5,120
Lindsay	702
I weed	1,201
kemptville	1,550
rembroke	452
Parry Sound	400
North Bay	574
pudbury	1,163
pault Ste Marie	895
white River	215
_napieau	121
pwastika	310
Lochrane	503
kapuskasing	294
Peraldton	125
'ort Arthur	1,448
ort Frances	321

Signy Lookout	384 256
TOTAL 22,4	

Failure rates were highest in the south with some 23 per cent of the applicants failing to qualify. Northern Ontario had a much lower failure rate of 13 per cent producing a provincial average of 21 per cent. Seventy-five per cent of the applicants were from southern Ontario. Continued evaluation of the licence examination program, in co-ordination with improved hunter safety training instruction, is the best means of increasing the percentage of successful applicants, thereby reducing the number of hunting accidents.

The Province of Ontario experienced its lowest number of hunting accidents (96) in the past fiscal year since the program was initiated.

SEIZURES AND CONVICTIONS

The Seizures and Convictions unit provides records for comparative purposes. A total of 3,674 violations were encountered during the fiscal year. This is the highest number on record for one year. The increase in violations reported has not kept pace with the great increase in hunters and anglers. There was a decrease in violations in the late 1950s and early 1960s. However, this decline has now been reversed, and violations and the numbers of people using the resource are following almost parallel courses.

CENTRAL LICENCE BUREAU

This Bureau was set up in 1968 to provide a registry for all hunters and fishermen in Ontario. It is hoped that this central file will facilitate an annual survey of sportsmen in Ontario and thereby give a sound basis for the management of fish and wildlife resources.

A central registry will provide a check on hunters, to make sure that only the legal number of licences are purchased in one season, and also to check that additional licences are not purchased once the privileges of a person have been revoked through an order of a provincial judge due to conviction for an offence.

The Bureau will serve the public by fulfilling requests for copies of lost licences. Through the "identification badge" number system, landowners can enquire as to the holders of certain hunting licences; thus, sportsmen-landowner relationships are improved.

At present, the filing system is basically manual, but it is in the process of being converted to an automated one whereby all licence information is filed by electronic computer.

SEIZURES AND CONVICTIONS

	1964-5	1965-6	1966-7	1967-8	1968-9
Number of Seizures Number of Convictions Cases Dismissed	2,236	2,581 2,347 64	2,942 2,626 93	3,404 3,239 105	3,557 3,489 183

WITHOUT A LICENCE (CONVICTIONS)

Activity	No.	%064-5 %109/0 109/0	No.	065-6 ⁰/₀ quency	No.	066-7 °/ ₀ Juency	No.	067-8 0/0 Juency	No.	68 -9 °/ ₀ Juency
Fishing without licence			1.06	4.6 15.3	204	7.7 15.9	178 467	14.9 23.1	237	6.5
Hunting without licence	19	19.6 0.9	360	0.2	5	1.2	14	41.1	32	0.87
TOTAL	603	27.1	472	20.1		24.8	659	20.3	858	23.37

VIOLATIONS, 1968-9

 Angling with more than two lines Possession of overlimit of fish Taking fish by means other than angling Taking fish during closed season Possession of fish during closed season Possession of spear Miscellaneous, including fishing without licence 	257 266 168 162 31 93 296
Total, Fishing Violations	1,273
 Possession of loaded firearms in vehicle Hunting during prohibited hours and jacklighting Possession of loaded firearms in motor boat Hunting in closed season Possession of game in closed season Hunting protected birds Miscellaneous, including hunting or trapping without licence Careless Hunting 	471 323 132 76 38 50 422 31
Total, Hunting Violations	1,543
Total, Violations	3,674

FISHERIES SECTION

Fisheries Section is responsible for the application of the principles of full, multiple and public use on a sustained yield basis to the fishery resources of the Province. The application of these principles involves an understanding of the resources and the organization of programs for their optimum harvest.

SPORT FISH AND HATCHERIES

Ontario is blessed with countless lakes, ponds, rivers and streams with great variation in productivity, fish species, ease of access, and in fishing pressure. The management, development and promotion of the sports fishery in these areas are the responsibilities of the Unit. To accomplish these objectives in conjunction with field staff. Unit personnel are involved in the planning and co-ordination of programs to assess the fishery and its degree of utilization by anglers; to determine the effectiveness of fish plantings; to establish angling seasons and regulations and to test their validity; to initiate habitat improvement projects, including lake reclamation and stream improvement; to study fisheries problems and to evaluate remedial action; to provide public access to natural waters and to acquire and develop public fishing areas; and to dispense information and promote the sports fishery.

The operation of an extensive system of fish hatcheries is an important part of fish management in Ontario. Production and distribution of fish stocks, modernization of the hatchery system, and the application of new fish cultural techniques are involved in the program.

ANGLING REGULATIONS AND SUMMARY

The trend toward more lengthy open seasons was evident in 1968. Opening date for brook and brown trout fishing was advanced to January 1st in 13 Divisions in which the opening date had previously been the last Saturday in February. Brook trout angling in these Divisions is predominantly a lake fishery and is maintained to a large degree by the planting of hatchery reared fish. Division 16 (Parry Sound) and Divisions 13 and 14 (Algonquin Provincial Park) were not included in this amendment.

Division 7 was amended to include the County of Hastings, and this change gave the County a lake trout season beginning January 1st. Uniformity in opening dates for lake trout fishing in Haliburton and Hastings Counties, and the northern portion of Peterborough County, was thus achieved.

The southern boundary of Division 25 in northeastern Ontario was extended southward to the C.N.R. in the Territorial District of Cochrane. This amendment enlarged Division 25 considerably and provided an all-year open season on all fish species inhabiting this relatively inaccessible and unexploited area.

The boundary waters between the Province of Ontario and the Province of Quebec were grouped together in Division 12, and this constituted the first step in establishing uniform angling regulations for such areas. The waters in question are Lake Timiskaming, the Ottawa River and Lake St. Francis.

It was also established on a permissive basis that residents of Quebec were deemed to be residents of Ontario when angling in the waters of Division 12.

The Summary was enlarged by one panel and fold. The map of northern Ontario was enlarged by 1.5 and placed on the reverse side.

Schedule 19, a new schedule, was established in the Ontario Fishery Regulations with reference to Public Fishing Areas in which the daily catch limit of brook and rainbow trout, in any combination, shall not exceed five fish. In 1968, four of these pond areas, i.e. Mount Pleasant, St. Williams, School House and Nine Mile Quarry, were established as Public Fishing Areas and managed intensively by the Department to provide public fishing for brook trout and rainbow trout.

LICENCES

Significant changes were made in the licensing fee structure during the fiscal year ending March 31, 1969. Effective January 1, 1969, a resident angling licence at \$3.00 was established for males only, nineteen years of age or over. At much the same time, two current licences, Resident Provincial Park and Resident Provincial Park Organized Camp, were discontinued as of December 31, 1968. Non-resident fees for the seasonal and 3-day licences were increased to \$8.50 and \$4.00, respectively, for 1969.

The sales of non-resident seasonal licences increased sharply in 1968 by eight per cent, and the 3-day licences by 3.2 per cent. A substantial increase of 13.6 per cent in the total licence revenue was realized. Of this, slightly less than half was due to the sales of resident licences during the last three months of the fiscal year.

Sales of domestic or sport fishing licences declined in 1968 with the exception of the domestic dip-net licence which increased from 425 in 1967 to 826.

EXTENSION BIOLOGISTS

The development and utilization of a significant part of the

fisheries resource in southern Ontario are influenced by land ownership. Our affluent society has given rise to changes in land ownership patterns, and the use of many rural properties has changed from agriculture to recreation. In the development field, which includes the construction and management of pond areas for fish, and stream management, there is an increasing need for professional advice and assistance on the part of new land owners. At the same time, the need for maintaining, developing and promoting public fishing by the preservation of habitat, land acquisition and construction, is ever increasing. The provision of public access to natural waters in heavily populated areas is also important and should be included in any modern management plan.

To initiate these programs and to provide a public service, an extension biologist was appointed to the Lake Huron district and one to the Lake Simcoe district in 1968. A Head Office position in the extension field was also acquired in 1968 but was not filled on a permanent basis.

FISHERIES MANAGEMENT UNITS

These Units, each consisting of a biologist and a potential staff of one Fisheries Management Officer and several summer students, are established on large, important water areas to ensure that fisheries matters are adequately covered. They constitute an addition to district staff, but with more confined responsibility.

In 1968, new Units were established on Lake St. Clair and Lake Nipigon. The biologists, so appointed, spent the remainder of the fiscal year in becoming thoroughly oriented with the resource and its problems, and in the perusal of available data and reports.

Rainy Lake. This Unit was established in 1965, at which time a basic program of applied research and investigation was prepared and initiated. The program consists of seven separate, yet integral, projects as follows: studies of yellow pickerel spawning stock; egg abundance and viability; abundance of yellow pickerel fingerlings and forage species; test netting; sampling of commercial catch; creel census work; and the collection of limnological data on Rainy Lake. Various aspects of the work have been carried out in the North Arm, Red Gut Bay and the East Arm. In addition to the yearly monitoring of the Rainy Lake fishery, the basic aim of these investigations is to determine the cause of fluctuations in yellow pickerel spawing success and the reproductive potential of the species in Rainy Lake. The abundance of fingerling yellow pickerel in 1968 approximated 400 per acre, which exceeded the 1967 abundance index of 331 per acre. An extensive creel census of the lower half of the North Arm revealed that anglers caught approximately 3,315 pounds of yellow pickerel at a rate of 0.2 fish per man-hour. Relatively light fishing pressure. 0.36 man-hours per acre, was indicated, and 64 per cent of the anglers were non-residents.

Timagami-Nipissing. An intensive creel census study, winter and summer, was continued on Lake Timagami in 1968. From these data, it was estimated that the lake provided 86,197 man-hours of fishing, and that the harvest consisted of 5,947 lake trout, 2,666 yellow pickerel, 520 smallmouth bass, 47 pike and 1,586 whitefish. The planting of market lake trout yearlings appears to be of little benefit to the Lake Timagami fishery. Since 1961, 72,500 marked trout have been planted, and only seven recaptures have been recorded. Future plantings, accompanied by a more intensive follow-up, will be made on an alternate-year basis unti 1977. A yellow pickerel tagging project was conducted a Wasi Falls in Callandar Bay of Lake Nipissing during the spring of 1968. Four hundred and six yellow pickerel were measured, sexed, scale sampled, fin clipped, tagged and released. Forty-seven of these fish were recovered by angler during the spring and summer fishing season, indicating ar angling mortality of 11.5 per cent. During the fall, an addi tional 159 yellow pickerel were tagged in Callandar Bay by the use of a trap net. A preliminary creel census and a boa count from aircraft were carried out. Some fish sampling and water quality analyses were also done.

Kawartha Lakes. A three-year study of the Rice Lake fisher, was completed by this Unit in 1968. A large part of the worl program consisted of netting, tagging and release of spor fish and the making of a creel census record. During the two and one-half months of netting in 1968, mid-April to the end of June, three sizes of impounding gear were used at ter different sites. The following numbers of sport fish were handled during the netting period: yellow pickerel, 1,986 largemouth bass, 1,526; smallmouth bass, 206; and maskin onge, 43.

Lake of the Woods. Fisheries work on Lake of the Woods in 1968 was primarily concerned with yellow pickerel, the mos important species. A total of 1,021 yellow pickerel wer tagged in the north sector of the lake at four locations. B the end of 1968, recaptures totalled 102, or 10 per cent, an of these, 80 per cent were caught by anglers and approxi mately 14 per cent by commercial fishermen. Routine sam pling of the commercial fishery provided comparative dat on the harvest of yellow pickerel taken in gill nets and tra nets. It was noted that yellow pickerel taken in gill ne averaged 17.1 inches in length, while those from trap ne averaged 15.1 inches. Many of the latter were immature fish The routine creel censes on Lake of the Woods during 196 showed a total success figure of 0.69 fish per man-hour (angling. Over 80 per cent of this catch consisted of yello pickerel. The production of fingerling yellow pickerel was sampled by seine hauls during the month of August. C



Planting yearling splake in Georgian Bay near Meaford.

overcast days, 7.5 young yellow pickerel per lift were capured during 20 seine hauls.

Bay of Quinte and Eastern Lake Ontario. The program nitiated in 1967 was continued in 1968. A creel census of the sport fishery in the Bay of Quinte was conducted by the Unit, together with the monitoring of some commercial fish tocks. Angling success in the western end of the Bay of Quinte was found to be fairly stable and much better than that experienced elsewhere. Reasons for the declining ishery in the remainder of the Bay have not as yet been determined. During the summer of 1968, the biologist-in-harge of the Unit actively participated in a program of experimental trawling in Lake Ontario.

ake Simcoe. Studies on whitefish, smallmouth bass and ellow pickerel were continued in 1968. A whitefish tagging roject, to determine the movements and distribution of the species and its relative abundance, was initiated in 1964. In the six years of operation, a total of 3,389 whitefish has een tagged and, of these, some 1,534 were tagged during the fall of 1968. Tag returns to date amount to 5.7 percent of the tagged fish. Smallmouth bass studies are being conjucted in specific areas to determine the strength of spawning populations, the average size of brood stock, and the

dispersal of lake and river spawners after spawning has been completed. The major work in 1968 was confined to the Pefferlaw River and entailed a netting and tagging project in co-operation with the University of Guelph, School of Graduate Studies. A total of 735 smallmouth bass was tagged and returns to date indicate a 5.8 percent recovery of tagged fish. Large numbers of spawning yellow pickerel are observed each spring in the Talbot River, but little is known of their habits at other times of the year. In an effort to obtain such information, experimental netting with trap nets was conducted during the summer of 1968. Various sets were made in the vicinity of the Pefferlaw and Beaverton Rivers, the Virginia Beach area and on Trout Shoal. Ninety-seven yellow pickerel were tagged, and it was apparent that the waters on the south side of Georgina Island provided good summer habitat for yellow pickerel.

SPECIAL PROJECTS

Long Term Yellow Pickerel Study. This study was initiated in 1961 in Tweed Forest District. The purpose is to determine if the quality of yellow pickerel fishing in small lakes can be increased by stocking when natural reproduction is low. Four lakes are involved in the study: Mississagagon, Kashwakamak, Plevna and Big Cedar. Stocking history and subsequent fishing quality has been tabulated for the four study areas. Analysis of the Mississagagon data showed a good relationship between fingerling stocking and subsequent fishing quality. Progress reports were submitted in 1965 and 1968.

Lake Reclamation. Introductions of brook and rainbow trout to suitable small lakes and ponds have contributed much to the sport fishery in recent years. Such fisheries, however, are largely dependent upon hatcheries for replenishment and will not stand competition from species such as perch, bass, yellow pickerel and pike. Also, large populations of coarse fish or minnow species will greatly reduce the productivity of trout in small water areas. When a lake or pond is otherwise suited for trout, it is considered good management to reclaim the waters for this species by applying a fish toxicant. The treatment is generally made in the fall, and the lake is subsequently planted with trout species in the spring. The following are examples of lakes reclaimed for trout in 1968: Lovells Lake, McCart Township, District of Cochrane; Mason Lake, Buchanan Township, Renfrew County; Porter Lake, Westmeath Township, Renfrew County; and High Lake, Loughborough Township, Frontenac County.

Sturgeon Lake. Located in Sioux Lookout Forest District, this lake is subjected to both angling and commercial fishing. Improved access by road in recent years has increased tourism in the area and further compounded the problems. Studies in 1968 marked the end of a three-year program to

determine the effect of combined angler and commercial fishing pressure on yellow pickerel and lake trout, the most important species. Creel census work in 1968 was intensified to provide better estimates of total harvest, and trap nets were operated to determine if significant changes had occurred in the yellow pickerel population since the 1965-6 survey. On a lake-wide basis, the abundance of yellow pickerel had not declined but more younger, smaller, fastergrowing fish with decreasing natural mortalities were noted. A summary of the work on Sturgeon Lake indicated that yellow pickerel and lake trout were under considerable fishing pressure. On this basis, some adjustment of commercial quotas was made.

Lac Seul. This large lake in Sioux Lookout Forest District has been a hydro reservoir of some 500 square miles since 1929 when the dam was built. The amount of water storage and subsequent draw-down approximates 14-16 feet annually. Ten tourist camps and thirteen commercial fishing operations are located on the lake, and it has been hypothesized that fluctuating water levels are limiting fish production. To investigate this possibility, a biologist and two students were assigned to work on Lac Seul during the summer of 1968. Past records of commercial fishing activity were examined, and comparisons made with more recent harvest statistics. The trend appears to be downward, but the cause is not as yet clear. In the summer of 1968, sounding and water sampling of the basin were initiated to provide data on the potential productivity of the lake. Approximately 50 per cent of the required work was completed in 1968 and the program will continue.

Bark Lake. This long-term project was initiated in 1965 in Pembroke Forest District to determine the effect of the extensive winter drawdown on the natural reproduction of lake trout. To date, approximately 500 adult lake trout have been tagged, and some interesting recaptures recorded. Also, 60,000 marked lake trout yearlings have been stocked to determine the contribution made to the fishery as compared to that of natural reproduction in years of severe water fluctuation. In 1968, an effort was made to determine the incubation period of lake trout eggs under natural conditions in Bark Lake. Fertilized eggs were placed in screened boxes in the lake on October 12th, and it was discovered that 30 per cent of the eggs had hatched by December 5th. This indicated that the minimum incubation period approximated 55 days. The work will be continued to establish an average incubation period for lake trout in Bark Lake. The project is expected to continue until 1975.

Georgian Bay. The site of the Georgian Bay yellow pickerel study was moved from the Shawanaga basin to the Moon River area in the spring of 1968. Trap-netting operations

were carried on from April 23 to May 21 and again in the summer from August 1 to August 30. A total of 4,440 yellow pickerel was captured. Preliminary estimates indicate a spawning population of approximately 21,000 fish. It is apparent from tag returns that a relatively widespread population of yellow pickerel utilize the Moon River spawning site, and there is the possibility that two discrete populations are present. Creel census studies continued at the Moor River and Shawanaga sites. Movements of yellow pickere from the latter, as evidenced by tag returns, showed that they concur with those of previous years.

Ouananiche (Atlantic Salmon) Fishery, Trout Lake. During 1968, a decision was made to take action to preserve and support this attractive fishery in North Bay Forest District Preliminary steps were taken to acquire the land along the lower reaches of Four Mile Creek to prevent a proposed development which would destroy spawning areas. Thirty six acres were purchased in the spring of 1969.

36-inch maskinonge taken at Balsam Lake, Lindsay Fores District.



PUBLIC FISHING AREAS

in 1968, eight pond areas were operated under intensive management to provide public fishing for brook and rainbow trout adjacent to population centres in southern Ontario.

The Nine Mile Road Quarry Pond near Cornwall was a most welcome addition to the public fishing areas in 1968. During its first year of operation, it provided an estimated 5,707 anglers with 10,227 angler-hours of fishing and a catch of 4,714 brook trout.

The Mount Pleasant Public Fishing Area continued to be most popular. During its fifth year of operation, it was visited by 35,128 anglers who spent a total of 93,879 anglerhours to catch 30,824 trout, of which 7,547 were rainbow trout and 23,277 were brook trout.

NETTING CREWS

The use of impounding gear (trap, pound and hoop nets) is becoming increasingly important in fisheries studies where it is imperative that fish be captured and released unharmed for further study. This type of gear is also gaining favour with commercial fishermen who appreciate the better quality of fish so captured and the ease with which unwanted or illegal species can be released. Department neting crews stationed at Maple and Port Arthur provide (by construction and repair) various types and sizes of impounding gear for projects in the field. The netting crews assist district personnel in routine projects and, in specific cases where large nets and special gear are required for deep vater fishing, they actually set and operate the equipment. Demonstrations of fishing with impounding gear are also nade for the benefit of commercial fishermen.

Numerous species of live fish were provided for display to the Canadian National Exhibition and the Sportsmen's how in 1968 by the staff at Maple, and they also participated in the collection of lake trout and yellow pickerel eggs or hatchery purposes. Field staff in the forest districts of indsay, Parry Sound and Lake Erie were assisted in specific etting projects.

In 1968, the Port Arthur staff assisted in the collection of ake trout eggs in the White River district and also particiated in fish surveys, fish tagging and fish transfer projects a various districts in northwestern Ontario. Demonstrations in the use of impounding gear for the benefit of commercial shermen were conducted on Lake of the Woods.

VATER QUALITY AND PESTICIDE STUDIES

uring 1968, the Department of Lands and Forests, in coperation with the Ontario Water Resources Commission, ontinued its efforts to detect and reduce water pollution in the province. One of the major programs was a province-wide pesticide monitoring study on 42 selected waters to determine the level of pesticides in various fish species.

The Department is also attempting to ensure proper garbage disposal by winter fishermen. During the winter of 1968-9, plastic litter bags were issued to ice fishermen in selected areas to determine if this action would reduce littering. The results were encouraging, and the program will be expanded in the future.

PROVINCIAL FISH HATCHERIES

The artificial culture of fish is the oldest and one of the most important methods of increasing fish production for both food and recreational purposes. It is, however, only one of several important management tools in common use by modern fisheries management. However, as with any tool, its improper application negates its potential usefulness. Ontario's long-term policies in this regard are designed to guide us toward the production of hatchery fish on an economical basis, to sustain, improve, and expand our fisheries for public use.

The evaluation of existing natural fish populations and the survival of hatchery reared fish is most important in the determination of suitable waters to be planted. To facilitate this assessment and the recognition of hatchery fish from wild stocks, a policy has been established to mark all hatchery fish for identification purposes. Marking is generally accomplished by the removal of one or more fins.

Research studies, on the survival of hatchery fish following air-drop plantings in small inland waters, indicates lower survival compared with those planted at the water surface. Helicopter plantings of hatchery fish are therefore being investigated for those waters on which fixed-wing aircraft are unable to land.

Fourteen hatcheries in twelve forest districts operated during 1968. North Bay hatchery was closed during the reconstruction and renovation of facilities.

Official openings of the Normandale hatchery in the Lake Erie district and the six large, earthen, splake rearing ponds at Chatsworth, Lake Huron district, were held in June and October, respectively.

Fifteen Department employees attended the three-week fisheries management course given each year at the University of Guelph. This course was designed to upgrade and familiarize our staff with current work in fisheries management.

Twelve species of fish were cultured in Provincial hatcheries during 1968. The culture of maskinonge, largemouth

and smallmouth bass, and brook, rainbow and lake trout was carried out to the maximum capacity of our hatcheries.

Attempts to culture aurora trout under artificial conditions, at both Dorion and Hill Lake hatcheries, have been disappointing to date.

The hybrid splake, developed for the rehabilitation of Lake Huron and Georgian Bay, have reached the production stage. One hundred thousand splake fry were donated to Michigan for rearing and ultimate release in the American waters of Lake Huron. Thirty-thousand large yearlings, reared at Chatsworth hatchery, were released in the Meaford shoals area of Georgian Bay during the spring of 1969. This was the initial production planting. Though relatively small in numbers, survival was excellent, and conditions for natural reproduction appear optimum. Ontario's commitment to the rehabilitation of the Lake Huron waters is one-half million splake yearlings annually.

Kokanee were reared from eggs received from Colorado and Montana in the continuing project to establish a breeding population in the Great Lakes. Mature kokanee, which returned to their original planting site at Oxenden Creek, near Wiarton, were artificially spawned. The eggs were found to be viable, indicating that natural production in Great Lakes waters was a reality. The establishment of this species in Lake Ontario has been less successful than that in Georgian Bay and Lake Huron waters. The kokanee project has been curtailed for the last two years because of spawning-run failures in British Columbia. A large proportion of our introductory spawn comes from this source on an exchange basis for brook trout eggs.

Coho salmon, from Lake Michigan, were reared at Chatsworth hatchery and released as smolts in 1969. Waters planted included Bronte Creek, the Humber and Credit Rivers in the western basin of Lake Ontario, and the Gravel and Jackpine Rivers of Nipigon Bay, Lake Superior. Coho salmon eggs were spawned by Department personnel in Michigan and transported to Chatsworth hatchery for culture. This is the second lot of coho cultured in Ontario, and though experimental in nature, the program is being continued to assess the contribution of this species to the fishery in the western basin of Lake Ontario.

Lake trout eggs were received from Clearwater (Atikameg) Lake, Manitoba, in exchange for brook trout eggs provided by Dorion hatchery and maskinonge fry provided by Deer Lake hatchery. The experimental use of two-year-old lake trout in the Muskoka lakes has produced significant returns and may hold promise for other inland waters hampered by reduced productivity of the native stocks, especially when in competition with other species. On the other hand, lake trout yearling plantings in Manitou Lake,

Manitoulin Island, now form 88 per cent of the spawning females, indicating the proven success of yearling plantings in specific waters.

During experimental yellow pickerel culture at White Lake hatchery, a technique was developed to initiate young yellow pickerel on an artificial diet. This is a significant finding. Previous restrictions on rearing yellow pickerel were caused by their preference for live feed and cannibalistic habits.

Golden shiners were spawned and reared experimentally at Westport hatchery in an effort to provide the commercial bait fish industry with methods and procedures for the artificial culture of bait fishes.

Several public fishing areas in southern Ontario, maintained by the Department and the Conservation Authorities Branch of the Department of Energy and Resources Management, were stocked with catchable trout. These fish provide quality angling in areas of high population where suitable water and opportunity is limited.

University and Government research agencies were also provided with Provincial hatchery fish for studies related directly or indirectly to improving our knowledge of fisheries management.

Our commitment to the International Great Lakes Fishery Commission for the rehabilitation of Lake Superior, following lamprey control on these waters, is 500,000 lake trou yearlings annually. These fish were provided from Dorior and Tarentorus hatcheries.

To accommodate visitors and those interested in fish culture and fisheries, our hatcheries remain open sever days a week. The annual number of visitors has exceeded 100,000 people, and a large percentage of these come in pre-arranged guided tours.

Where possible, assistance is afforded to private hatcher operators and pond owners on an advisory basis. Sixty in dividual, private fish hatcheries were licensed in 1968. O these, nine were licensed for restocking purposes only, 2 for human consumption sales, and 24 for both purposes.

DOMESTIC OR SPORT FISHING LICENCES

DOMESTIC OR STORY		er of Licenc	es Sold
Type of Licence	1963	1967	1968
Non-resident Smelt	3,500	5,171	4,870
Resident Smelt	4,500	5,706	3,94
Angler's Bait-fish	81	425	820
Domestic Dip-net	81	425	821

^{*}Includes non-resident bow-and-arrow fishermen.

SALE OF ANGLING LICENCES

Type of Licence	1965	1966	1967	1968
Non-resident Seasonal Non-resident 3-day Non-resident Organized Camp Resident (introduced Jan. 1/69) Resident Provincial Park (discontinued Dec. 31/68) Resident Provincial Park Organized Camp (discontinued Dec. 31/68)	403,894 122,219 7,041 12,638 344	409,539 151,373 10,541 12,805 444	411,768 156,493 10,550 13,120 446	446,468 161,473 7,670 69,648 13,200 399

FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES (continued)

SPECIES	NUMBER OF FISH DISTRIBUTED							
	1964	1965	1966	1967	1968			
Bass, Largemouth								
Fry Fingerling Yearling Adult	112,000 90,650 —	81,000 107,500 —	41,500 147,000	67,500 75,000	60,000 49,900 2,000			
Bass, Smallmouth	products			260	45			
Fry Fingerling Adult	52,000 239,450 290	58,000 230,700 165	36,200 215,500 160	98,000 211,950 178	38,200 91,000 181			
Grayling, Arctic				170	101			
Adult	215	_						
Herring Eyed Eggs Fry			1,150,000	7,030,000				
Okanee	_		_	2,000,000	_			
Eyed Eggs Fry Fingerling		683,300 1,608,344	923,200 942,911	<u> </u>	413,000			
Maskinonge		287,680		212,100	58,525			
Fry	1,530,000 26,300 —	1,850,000 24,600 15	1,330,000 22,212 —	2,580,000 12,200	2,400,000 26,600			
Adultalmon, Atlantic			_	195	-			
Fry	15,400 106			_	_			
Fingerling								
2 Year-olds	87,650 11,645	21,200 15,700	69,000 44	65,452 7,300	2,000 36,226			
Adult	_	_			984			

Continued ...

FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES (continued)

	number of fish distributed							
SPECIES	1964	1965	1966	1967	1968			
Sturgeon Adult	-	_	_	3				
Trout, Albino Brook Yearling 2 Year-olds	3,873 —	4,380 —	_	12,861 1,093	_			
Trout, Aurora Fry Fingerling Yearling	582 — 682	4,000 —	_ _ _	_ _ _				
Trout, Brook Eyed Eggs Fry Fingerling Yearling 2 Year-olds Adult	400,000 8,000 505,750 1,725,755 111,920	673,900 — 600,275 1,818,891 69,216 —	 480,490 1,599,092 28,895 	2,741,000 50 1,125,454 1,654,182 52,470 40,720	 524,46 1,149,09 26,53 13,40			
Trout, Lake Eyed Eggs Fry Fingerling Yearling 2 Year-olds Adult	20,000 — 690 981,806 535 —	224,800 826,865 9,340	11,900 395,081 1,335,830 312	50,000 — 328,443 1,291,969 12,600 405	20,00 190,54 1,351,74 10,46 1,20			
Trout, Rainbow Eggs Eyed Eggs Fry Fingerling Yearling 2 Year-olds Adult	140,500 318,890 14,553	65,000 11,750 269,285 62,750	100,000 30,820 125,510 10,000	45,000 631,500 6,000 87,810 147,850 29,500 13,600	200,00 333,00 — 67,53 361,18 22,29			
Pickerel, Yellow Eyed Eggs Fry Fingerling Adult	14,000,000 1,353,000 —	15,600,000 — 55,655 —	10,000,000 8,232,000 ——	13,054,800 28,000,000 41,656 200	6,240,00 189,05 5,20			
Whitefish Eyed Eggs Fry	27,090,000	24,030,000	 19,845,000	300,000 240,000	-			
Pike, Northern Adult	_	_	_	_	3			

FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1968 (continued,

E — Eggs EE — Eyed Eggs		Fy — Fry Fg — Fingerlings		Yg — Yearlings II — Two-year-olds		S
atchery	Brook Trout	Lake Trout	Rainbow Trout	Largemouth Bass	Smallmouth Bass	Other Species
natsworth	11,300 Fg 36,966 Yg 6,254 Ax		153,000 EE 12,000 Fg —- —	_ _ _		Splake 10,600 Fg —
odrington	500 Fg 27,100 Yg 675 Ax				 	
eer Lake	900 Fg 25,850 Yg	 46,650 Yg	86,400 Yg		 	Maskinonge 2,400,000 Fy 26,600 Fg
rion	405,500 Fg 46,500 Yg 555 II 3,430 Ax	 288,870 Yg 	5,000 Fg — —			
l Lake	61,000 Fg 125,250 Yg 13,900 II 2,217 Ax	100,000 Fg 22,000 Yg —	40,000 Fg 31,500 Yg — 470 Ax		 	
lhurst	10,905 Fg 70,480 Yg —	19,700 Yg	100 Fg 17,650 Yg 2,889 II	 	10,000 Fg —	
mandale	 13,186 Yg 		200,000 EE 10,436 Fg 59,830 Yg 19,407 II		- - - - -	Continued

FISH DISTRIBUTION FROM ONTARIO PROVINCIAL HATCHERIES, 1968 (continued)

E — Eggs EE — Eyed Eggs	Fy — Fry Fg — Fingerlings		Yg — Yearl II — Two	Yg — Yearlings II — Two-year-olds			
Hatchery	Brook Trout	Lake Trout	Rainbow Trout	Largemouth Bass	Smallmouth Bass	Other Species	
North Bay	35,000 Yg 12,000 II 600 Ax	86,000 Yg	9,500 Yg — —				
Pembroke	33,400 Fg 138,560 Yg	=	 10,000 Yg		_	_	
Port Arthur		20,000 Fy 32,840 Fg	_	_	_	=	
Sandfield	 121,450 Yg	 32,500 Yg	 61,000 Yg	4,000 Fy —	38,200 Fy 8,000 Fg 181 Ax	Maskinonge 40,000 Fy 400 Fg	
Skeleton Lake	 151,499 Yg 	108,200 Yg 10,462 II	100,000 EE — —		51,000 Fg		
Tarentorus	630 Fg 128,500 Yg 80 II 230 Ax	522,000 Yg 	18,000 Yg	=		Splake 2,000 Fg 25,626 Yg 984 Ax	
Westport		49,500 Yg		56,000 Fy 49,900 Fg 2,000 Yg	= = = = = = = = = = = = = = = = = = = =	Yellow Picker 55,000,000 EE 12 Ax Northern Pike 303 Ax	
White Lake	_	_	80,000 EE		_	Yellow Picker 6,240,000 EE	

59,300 Yg

189,050 Fy

150,000 Fy 58,525 Fg

Kokanee

5,200 Fg

OTHER CULTURES:

Wiarton

35,000 Kokanee swim-up fry planted from South Bay Fisheries Research Station. 228,000 Kokanee swim-up fry planted from Glenora Fisheries Research Station.

176,325 Yg

57,700 Fg

328 Fg

197,750 Yg

COMMERCIAL FISH UNIT

The Commercial Fish Unit is responsible for licensing comnercial fisheries; setting seasons, quotas, size limits, and otherwise regulating fishing; collecting and compiling bioogical and economic statistics on the harvest; planning and co-ordinating surveys to monitor fish stocks and evaluate the effects of fishing; and implementing programs to assist the industry in its efforts to advance technologically. In ddition, the Unit directs provincial activities related to the dministration of the Fishermen's Indemnity Plan in Ontario.

THE COMMERCIAL FISHERY

he fishing industry landed 55.7 million pounds of fish, worth 6.0 million dollars at the producer level, in 1968. This was an increase of 2.7 million pounds or 5.1 per cent over the production of the previous year. The landings included record catch of 24.4 million pounds of yellow perch from the ake Erie.

The industry reported a labour force of 2,044 men in 1968 and an investment in vessels, gear, and shore installations mounting to 10.8 million dollars. Among those deriving a ving from fishing were several hundred Indians in remote orthern areas.

Sales by the bait fish industry, which are not included in the above statistics, totalled 1.5 million dollars in 1968. More interest was shown in bait fish culture, and some partner facilities for this purpose were constructed. However, the majority of the fish sold still were taken under cence from lakes and streams in the Province.

ICENSING

commercial fisheries are established where there is a repurce base adequate to support their economic operation and where their presence will contribute to a net increase total benefits. Accordingly, 106 new fishing licences were sued in 1968. The total number of commercial fishing cences issued, however, declined by 16 to 1,731 as a related some fishing privileges, which had been made related to the conditions, of being renewed.

In addition to the fishing licences, 29 experimental perits were issued to commercial fishermen. Such permits hable the fishermen to experiment with new or modified terms of gear which are not otherwise provided for in the gulations, and to assess the feasibility of extending their perations into new areas and times. Studies carried out order the authority of this type of permit led to a longer nit-fish seine being declared legal in 1968.

A new policy, with respect to the management and tensing of the commercial fishery on Lake St. Clair, was

announced in October of 1968. Under the new policy, gillnets would continue to be excluded from the lake, and no further pound-net or baited-hook licences would be permitted. Fishermen, however, would be able to increase their individual holding through transfer procedures and to expand their use of coarse fish. It was felt that sufficient pressure was already being exerted on prime species. The policy ensured that commercial fishing would be conducted in such a manner that the least possible conflict with the growing sport fishery and other recreational activities would occur. At the same time, it provided for the development and economic stability of individual fishing enterprises.

REGULATIONS

Of the various changes made to the Ontario Fishery Regulations in 1968, many were for the purpose of separating the regulations pertaining to sport and commercial fishing. Several, however, were important from a management standpoint. A closed season on commercial fishing in the Essex County waters of Lake Erie was established for the period, May 16 to April 14, to allow greater numbers of these fish to spawn. The population had declined substantially and was showing signs of instability. For the same period and in the same connection, the use of gill-nets, suitable for yellow pickerel or any gill-nets floated off the bottom, was prohibited. Another amendment opened Whitefish Bay of Lake Superior to commercial lake trout fishing and placed a limit of 15,000 pounds on the trout catch for that area for the year.

MARKETING AND PRICES

The prices for the premium freshwater fish species improved in 1968 as the frozen stores of fish, which had accumulated the year before, cleared.

—Continued on Page 34

The Leola Charles while engaged in experimental fishing operations conducted by the Department in Lake Ontario.



Statistics of the Fishing Industry in the Public Waters of Ontario for the Year Ending December 31, 1968

QUANTITIES OF FISH TAKEN (pounds)

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	
Bowfin	15,276	9,854				
Bullheads	145,533	15,150	3,120		429	
Burbot		92				
Carp	412,132	93,473	289,711	58,183	21,376	
Catfish	23,303	92,036	108,813	8,341	10,225	
Chub				262,705	179,652	
Eels	172,934	222				
Freshwater Drum	24,838	651,122	19,318	100,726	950	
Goldeye						
Lake Herring	40,264	10	1	4,603	17,494	
Lake Trout				4,187	23	
Lake Whitefish	76,955	663		356,205	285,594	
Northern Pike	33,813	2,022	23,999	287	11,011	
Yellow Perch	304,171	24,435,187	59,071	71,022	38,394	
Rock Bass & Crappies	64,419	45,426	84,952	112	217	
Round Whitefish				15,692	13,792	
Saugers		622		3	62	
Smelt	167,815	12,223,304		1,459	14	
Sturgeon	1,837	611	12,809	6,195	404	
Suckers	19,356	19,862	122,552	120,507	34,339	
Sunfish	185,763	28,613	78,212			
Yellow Pickerel	21,995	328,411	225,808	324,998	61,130	
White Bass	5,524	751,162	56,943	3,774	83	
White Perch	223,087					
Mixed "Scrap" Animal Food	70,031	717,407	36,015	115,444	53,247	
Total Catch	2,009,037	39,415,249	1,121,323	1,454,443	728,436	
Total Value	\$ 284,272	\$ 2,973,814	\$ 270,626	\$ 509,471	\$ 222,089	\$

Lake uperior	Northern Inland	Southern Inland	Total Catch	Total Value
		875	25,996	606
	32,509	197,161	395,277	70,866
	368,894	11,057	382,387	4,555
		109,298	987,040	87,016
		12,672	255,390	71,104
4,565	231,621	35	680,703	89,983
		7,860	181,016	45,286
	646	4,386	801,986	21,077
	2,112		2,112	325
8,861	270,708		2,984,572	177,538
3,423	103,278		301,026	131,473
2,205	1,861,091	13,878	2,905,716	917,228
2,252	863,039	3,115	955,597	96,508
9,604	32,384	4,994	24,968,515	2,107,470
	63,342	16,304	275,839	65,717
1,273	175		55,519	9,912
6,844	50,579	1,876	69,986	13,939
7,622			12,490,214	485,925
2,465	31,921	8,655	79,370	104,414
8,775	856,029	21,006	1,277,921	27,956
		107,761	400,349	54,141
9,022	1,666,299		2,764,839	1,078,359
	642	1,367	819,495	277,237
		7,676	230,763	17,504
8,089	375,999	23,715	1,413,795	11,800
5,000	6,811,268	553,691	55,705,423	
3,008 \$	1,136,176 \$	83,227		\$ 5,967,939



A Lake Nipigon fish tug, owned and operated by Indians.

COMMERCIAL FISHING EQUIPMENT

		Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron
NUMBER OF MEN EMPLOYED:		280	626	76	118
FISHING BOATS:					
40 feet and over	No. Tons Value\$	3 31 12,000	130 3,077 2,616,560	_ 	31 689 437,322
20 to 39 feet	No. Value \$	54 93,750	64 214,000	20 53,200	13 44,500
Under 20 feet	No. Value \$	225 64,987	103 25,920	56 27,525	15 7,545
FISHING GEAR:					
Gill Nets	Yards Value\$	885,004 201,398	4,295,104 1,423,895		1,060,060 275,369
Pound Nets	No. Value \$	-	111 65,300	514 187,080	13 13,400
Trap Nets	No. Value \$	28 7,650	295 200,500		129 109,125
Hoop Nets	No. Value \$	955 74,195	66 4,770	10 600	
Seine Nets	No. Yds. Value \$	1,865 5,650	9,090 35,755	3,300 5,725	
Night Lines	Hooks Value \$	24,802 3,505	10,796 2,735	23,253 4,505	
Dip Nets	No.	1 20			
Trolling Lines	No. Value \$	34 940			
Trawls	No. Value \$		119 117,450		_
SHORE INSTALLATIONS:					
Freezers and Ice Houses	No. Value \$	27 14,190	27 433,770	16 22,300	18 107,300
Piers and Wharves	No. Value \$	42 12,875	55 80,583	18 8,325	12 10,900
Net Sheds	No. Value \$	117 80,275	136 490,076	30 71,640	38 128,800
TOTAL VALUE	\$\$	\$ 571,435	\$ 5,711,314	\$ 380,900	\$ 1,134,261

North	Lake	Northern	Southe	
Channel	Superio	Inland	Inland	
43	131	503	120	2,044
- 6	15	9		217
81	289	86	_	4,519
139,000	193,600	94,832		3,733,032
13	32	70	5	306
23,250	76,925	105,026	3,100	686,251
23	69	376	98	1,007
7,215	37,865	209,569	18,690	423,251
83,300	610,464	847,450	45,600	8,888,247
45,100	166,560	262,219	15,300	2,628,588
9	10	50	_	734
3,900	11,445	42,080		371,105
10	1	78	1	552
4,420	1,400	51,496	900	384,441
	10	112	762	1,915
	750	8,960	46,365	125,640
	6,000		2,282 4,934	22,637 55,164
Committee	_	900 196	4,450 1,310	65,101 12,401
1 10			4 105	6 135
		_		34 940
	5 6,100		. —	124 123,550
18	41	227	17	430
15,975	108,200	178,975	8,649	978,434
13	43	158	12	403
6,200	26,800	69,077	2,775	265,235
19	71	150	31	651
15,850	55,745	70,007	12,275	1,025,643
50,920 \$	685,990 \$	1,092,437 \$		10,823,810



A trawl, showing graduations in mesh size, awaits use at Port Dover.

The Fisheries Prices Support Board modified its plan to support the price of yellow perch in 1968 by reducing the price being maintained for perch at the dockside from ten cents to seven cents for the spring period. At the same time, the Department introduced quotas on yellow perch from Lake Erie to insure that the catches would be more evenly distributed over the period when the fishery is active. The quotas, which initially were five million pounds for the April 1-May 31 period and ten million pounds for the remainder of the season, were later raised by one million and six million pounds, respectively.

A series of meetings were held in northwestern Ontario in 1968 to enable fishermen to learn how the operation of a marketing organization, such as the one proposed by a Royal Commission on freshwater fish marketing, would affect them. A majority of the fishermen subsequently expressed the opinion that much of northwestern Ontario should be included in the designated area of a planned Marketing Corporation.

FISHERIES DEVELOPMENT PROGRAMS

The Department, with financial and technical assistance from the Department of Fisheries of Canada, launched one new development program in 1968 and renewed its participation in a second program that was initiated the year before.

On Lake Ontario, a program of experimental trawling was conducted with the object of assessing the biological and economic feasibility of developing a commercial trawl fishery for smelts and alewives. The work, which was directed by the biologist from the Bay of Quinte Fisheries Management Unit, was carried out under contract by fishermen and a vessel from the Lake Erie fleet of trawlers.

Between the dates July 24 and December 13, 1968, searches for fish were made along prescribed courses within 50 square-mile sampling areas, using a sensitive echo sounder as a fish detecting device. Tows, with one of several types of trawls provided for the project, were made in those areas where sizeable concentrations of fish were found over a regular bottom suitable for trawling.

The results were encouraging. Two extensive areas were found where smelts and alewives were dense and where trawling operations could be safely conducted: one in the eastern basin and the other off Hamilton. Both were thought to have commercial potential. Plans were made to conduct further fishing, more on a commercial scale, in those areas and to investigate fully the marketing opportunities available to fishermen who might take the fish.

Financial aid was provided for a second year to assist the industry on Lake Erie in a study of the economics of operat-

ing a small, fish meal plant to process filleting wastes and coarse fish. The findings are expected to be useful to a wid sector of the fishing industry, at both the producer and processor level.

FISHERMEN'S INDEMNITY PLAN

Twenty-one fishermen availed themselves of the opportunity of obtaining low-cost insurance under the Fishermen's Indemnity Plan in 1968. This brought to 40 th number of fishermen who had taken out policies since the Plan was introduced to Ontario in 1967.

The Department's function in the administration of the Plan, which was initiated by the Department of Fisheries of Canada, has been to provide the necessary field service These include appraising vessels, receiving premiums an investigating claims.

The sinking of an insured vessel in 1968 resulted in the first payment to an Ontario fisherman being made under the provisions of the Plan. The claim was related to the coof raising the vessel and restoring it to working order.

PROJECTS

An intensive commercial catch, sampling project was unde taken at the western end of Lake Erie in 1968 to secure in formation needed for developing regulations that woul effectively protect immature yellow pickerel and yet no unnecessarily restrict fishing activities directed at other valued species. Data on fishing methods, locations and intensit and on catch size and composition, were obtained by three staff members who travelled aboard the fishing vessels. The project represented an extension of a catch sampling program that is being developed across the Province to montor fisheries and fish populations.

A study of the changes occurring in a whitefish popul tion in Lower Rideau Lake was pursued by Kemptville di trict staff to establish guidelines for managing the whitefis fishery in future. Commercial fishing was first allowed for these fish in 1966 and it was observed that the population which earlier had been little exploited, was undergoing rapid change.

Efforts to define the movements of yellow pickerel with Lake St. Clair and between this body of water and the twadjoining lakes, Erie and Huron, were resumed in 1968. total of 2,500 of these fish were tagged and released, 1,500 the Thames River and the remaining 1,000 in Lake St. Clair Tag returns have indicated that there is some movement be tween the above mentioned waters, a fact which manage can now take into account.

FISHERIES INVENTORY UNIT

An inventory of Ontario lakes, to determine the present and potential capability of every lake as a fish producing unit, is directed by the Unit, established in 1966.

Refinement and sophistication of technique and survey gear were prominent features in the 1968 program.

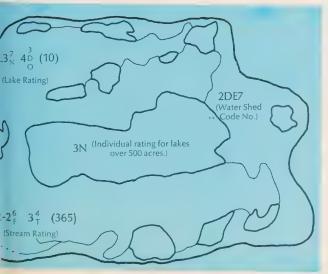
Standardization of lake survey gear and techniques over 21 District field offices, the establishment of duplicate District office survey files in Head Office, and the implementation of a data control system were major accomplishments.

Participation in the ARDA-CLI Sports Fish Capability Study in conjunction with the Federal government resulted in the completion of 11 maps (1:250,000 Topographic series) showing Sports Fish Capability ratings for much of southern Ontario.

The employment of a helicopter, to work in conjunction with a six-man lake survey crew from a central headquarters, instead of the conventional two-man crew, was tested during the month of September. The helicopter was also used during March to collect under-the-ice water samples for chemical analysis.

The search for more efficient and versatile equipment resulted in the purchase of Conductivity Meters, used as an aid in determining water productivity. Continued experimental testing of survey gear resulted in the purchase of

Representation of a typical watershed on a topographic map showing code number and lake and stream classification.



more efficient Echo Sounders by many Districts, and the increased use of Monofilament gill nets.

Several projects, such as preliminary investigations into the role that infra red photography may play in plant identification and recording shoreline characteristics; training of fish scale readers and the establishment of facilities throughout the province; searching for an efficient multiprobe water chemistry testing unit; the introduction of a specialized lake survey training course; the computerization of data; and the possibility of using an amphibious four-seat Hovermarine Hovercraft for lake and stream surveys—were either continued or initiated.

At the year's end, there was reason to believe that scale reading, training courses, and data programming and processing would be prominent features of the 1969 program.

STANDARDIZATION OF LAKE SURVEYS

After a study of District files, information on 7,876 bodies of water have been recorded on summary sheets as of December 31, 1968. Of these 3,488 had been surveyed in some depth, but few surveys met our present, rigid standards. It became obvious that the establishment of minimum survey standards and a uniform method of establishing duplicate records in both District offices and Head Office were essential. The findings of this study resulted in making our 1969 program two-fold in purpose; first, to up-date the survey summary sheets, which did not meet the minimum survey standard requirements of the most important lakes

A helicopter delivers 14-foot aluminum boat and other gear to lake survey crew.



(clerical entries and water chemistry tests were the principal omissions); and second, to survey new waters of high management priority rating within the District.

1968 LAKE INVENTORY SURVEYS

University students, summer Ranger Technicians and Conservation Officers participated in the summer inventory program. Completed surveys reached a new high, 630 in number, and were conducted in all but two Forest Districts; Chapleau and Lake Erie were the exceptions.

SPORTS FISH CAPABILITY STUDY

One hundred and sixteen lakes, representing 79,000 ± acres, were completely surveyed to meet both Sports Fish Capability Study and Inventory standards. Eleven topographical map sheets (Scale 1:250,000), covering the entire western portion of Ontario as far north as North Bay and west of Belleville, were prepared and dated as to their Sports Fish Capability.

The rating system used in this survey was developed by the Federal Government and is designed to give planners general statements about sport fishing potential without going into detail.

Using this system, waters are to be divided into four classes as follows:

- Class 1—waters in this class have no important limitations to the production of sport fish.
- Class 2—waters in this class have slight limitations to the production of sport fish.
- Class 3—waters in this class have moderate limitations to the production of sport fish.
- Class 4—waters in this class have severe limitations to the production of sport fish.

The above classes were further rated according to the limitation that affected the class level. The letters D for depth, F for flow, L for light penetration, N for nutrient, O for oxygen, T for temperature, S for special factors, were used. Up to two letters could be used for each class, with the most important being first. Thus, a lake which would be excellent for sport fish production except for a severe lack of nutrients, might be rated 3N.

It should be emphasized that this rating system is for Canada Land Inventory purposes, only, and is quite separate from the detailed lake survey index we are presently developing for Ontario lakes, based on our own lake survey program.

HELICOPTER POTENTIAL IN LAKE SURVEYS

The primary purpose of this experiment was to establish whether the use of the helicopter would accelerate any or

all of the survey procedures and whether specialization personnel in a six-man survey crew would result in mo efficient work and better information. The aim was to crease the quantity of work, yet improve quality of the da

A number of difficulties were experienced throughout t two-week study in the Severn River area, south of Highw No. 69. However, there is reason to believe that many, not all, could be overcome by modification of helicopt fitting or accessories and sophistication of survey gear. The project is being pursued.

LAKE WATER SAMPLING DURING WINTER

Water samples were collected from fifty lakes in the Bru Peninsula and Lake Muskoka and Haliburton Highla regions during March. A two-man survey crew moved from lake to lake by helicopter. Two-to-three feet of ice had be drilled by auger to obtain a water sample. The purposition of this study was to compare the chemical and biologic properties of water in lakes located in different geologic formations, watersheds and site regions (areas of the same landform which produce the same type of vegetation, at these lands must be within an area in which there is very great variation in the regional climate) and to invest gate whether the chemical properties of lakes varied so nificantly from season to season.

INVENTORY RECORD OF SURVEY GEAR

March 31, 1969

Item	Quantity	District	Head Off
Hach Chemical Kits:			
DR-EL Engineers	26	4	22
AL-36 Laboratories	39	24	15
Field Kits			
Echo Sounders:			
Bendix	15	15	0
Ferrograph	25	13	12
Furuno	31	16	15
Thermistors	51	28	23
Trichinoscopes	18	16	2
Jewellers Presses	16	16	0
Conductivity Meters	5	3	2
Sechhi Discs	50	46	4
Eckman Dredges	2	2	0

In addition to this equipment, supplies of multifilame and monofilament gill nets, minnow seines, dissecting k abney hand levels, camping and cookery units were corded.



Parks Branch is divided into three sections with duties and responsibilities as follows,

Recreation Planning:

Long-range planning for parks and related public recreation areas.

Park Planning and Development

Detailed Provincial Park master plans and control of all park development according to approved plans.

Park Management

Establishment and control of standards of park operations; direction of park interpretive programs; establishment of a nature reserve program; management of operating revenues and expenditures; compilation of statistical data; and management of a program of public access points to water, and a system of canoe routes, hiking trails and snowmobile trails.

CLASSES OF PARKS IN ONTARIO

To meet the broad spectrum of present park requirements and to plan for the future, the Provincial Park system contains five different classes or types. Each offers different recreational experiences, and each provides varied facilities in keeping with the class purpose.

- Class I, Primitive Parks are large areas of natural landscape preserved for recreation, education and scientific observation. They are reserved from natural resource exploitation and from major facility development such as serviced campgrounds.
- Class II, Wild River Parks are significant rivers established for recreation, aesthetic or historic purposes. They are protected from the intrusion of incompatible land and water uses.
- Class III, Natural Environment Parks, landscapes of outstanding aesthetic or historic significance, are established primarily for recreation and education. Other resource uses are permitted providing they do not conflict with recreation. Facilities and services may be limited so as to interfere as little as possible with the environment. Zones further protect special areas.
- Class IV, Recreation Parks are areas of intensive recreational use in which the environment may be substantially modified to accommodate park users. There are two subclasses to this class: (1) Recreation Areas, which are day use oriented; and (2) Campgrounds which are camper oriented. These parks contain more fully-serviced facilities.
- Class V, Nature Reserves are unique natural areas established for scientific and educational uses. General public enjoyment is permitted if it is not detrimental to the area.

RECREATION PLANNING

Work was initiated during 1968-69 on a significant new research and planning program, the Canada Outdoor Recreation Demand Study (CORDS). This study, which is a co-operative project involving the 10 provincial park agencies and the Federal Government, aims at achieving a more complete understanding and measurement of outdoor recreation demands in Canada to guide investment and management planning, to identify and evaluate policy alternatives, and to forecast recreational use of resources as it relates to alternative development proposals.

During the summer of 1968, with the assistance of Brock University, Waterloo Lutheran University and the University of Western Ontario, the Section carried out an inventory of some 12,000 public and private outdoor recreation facilities in both urban and non-urban areas. The Conservation Authorities Branch of the Department of Energy and Resources Management co-operated in this project. This inventory of outdoor recreation supply is one of the basic inputs to CORDS. In addition, during 1968-69, planning was undertaken for a Park Visitor Survey to be carried out during fiscal year 1969-70 as another element of the CORDS program.

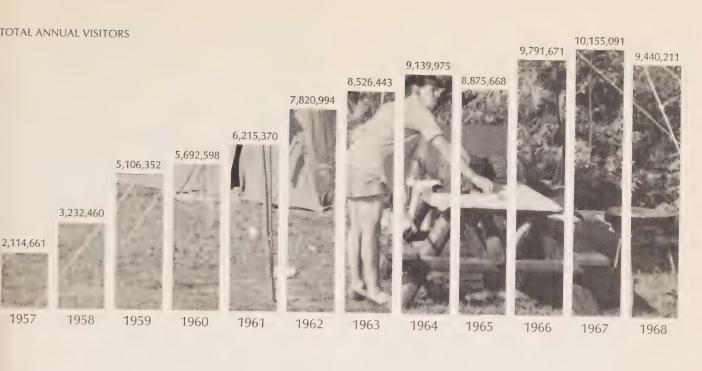
The CORDS program is also closely integrated with the Tourism and Outdoor Recreation Plan (TORP) program now underway as a co-operative undertaking of several departments — Tourism and Information, Treasury and Economics, Municipal Affairs, Energy and Resources Management, Education, Highways, and Lands and Forests. The purpose of the TORP program is to provide the factual bases, and to formulate alternative plans, for the attainment of the social and economic goals defined in Design for Development insofar as they relate to tourism and outdoor recreation.

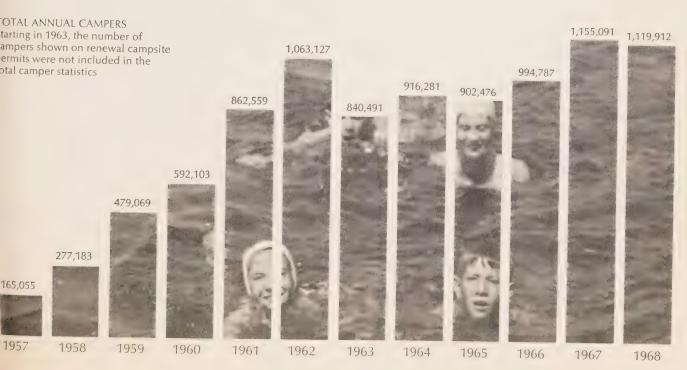
During 1968-69, work continued on the assessment and evaluation of lands for future provincial park development, and a number of new park reserve areas were established through land acquisition and the setting aside of Crown lands. Particular emphasis is given to the provision of a broad spectrum of park types as conceived under the 1967 Ontario Provincial Park classification and park land zoning policy. The goals, development and management guidelines, and activities, for each area, are expressed through the preparation of detailed park master plans.

PARK PLANNING AND DEVELOPEMENT

Master Planning was commenced for six Provincial Parks. A Provisional Master Plan for Algonquin Park was published and when Public hearings were held, more than 100 briefs were submitted. The planning process is continuing under the direction of a task force whose responsibility is to assess the briefs and prepare planning guidelines by the end of 1969. These guidelines will be in force for the period to 1975.

Site planning was done for 45 parks and park areas. A program for upgrading park entrance structures was instituted. Development appropriations amounting to \$3,665,-





000* were allocated for individual projects in 102 parks and park reserves. Development was focused on upgrading existing parks and improving sanitation facilities and water supplies in parks already in operation. Access roads to many park areas were improved. Wherever possible, these projects were tied in with current highway improvements. *Of this amount, \$1,200,000 was earmarked for ARDA participation parks with \$600,000 returnable to Treasury from Federal funds.

PARK MANAGEMENT

Ninety-six Provincial Parks were in operation during the 1968 parks season. Wakami Lake and Missinaibi Lake in the Chapleau district, and Polar Bear Park in the Cochrane district, were operated as Provincial Parks for the first time, while Clay Creek, in the Lake Erie district, was deleted from the Provincial Park system and turned over to the local conservation authority for operation.

Polar Bear Park, located on the shores of Hudson and James Bays, was established as the Province's first primitive class park. The addition of Polar Bear, with its four million acres, literally doubled the area of land contained within the Provincial Parks system. As it is a primitive park, there will be little, if any, development taking place in the area. This park is a major addition to the Provincial Park system and should contribute a good deal towards the preservation of a representative, and yet unique, segment of our Arctic tundra for the enjoyment, education and study of present and future generations.

There was a decline in park use even though there were two additional parks in operation. Below-average weather, the loss of the Expo 67 travel stimulus, and revised user fees were all felt to contribute to this decline. Day use visitation at 9,440,211 was down seven per cent from the 1967 attendance figure, while the 1,119,912 campers represented a three per cent decline.

CHANGES IN FEES

An increase in user fees was implemented prior to the 1968 park operating season. Daily vehicle entry permits remained unchanged at \$1.00. Annual vehicle entry permits, however, were increased from \$5.00 to \$10.00 per year. The camping rate of \$1.50 per night (or \$9.00 per week), plus vehicle entry, was changed to a flat rate of \$2.50 per night. With this change in the camping fee, the daily and annual vehicle entry permits were no longer of value for camping.

A new camping permit system, designed for self registration, was introduced in 1968. Unfortunately, this system did not work satisfactorily and will be revised.



Beach area, Arrowhead Provincial Park.

An interior camping permit was introduced in Algonquand Quetico Provincial Parks. The fee for interior camping was \$1.00 per boat, per day, or \$5.00 for a 16-day period These fees were introduced in an attempt to balance thigh maintenance costs that were being encountered removing garbage and litter from campsites and portages the interior of these parks. In addition, the interior period gave parks staff an opportunity to determine exactly the numbers of persons using the interior of the parks and whareas were being subjected to the greatest pressures, and education program was also begun to emphasize the public need to carry out garbage.

INTERPRETIVE SERVICES

Park interpretive services (designed to promote an undestanding and appreciation of Provincial Parks) were present 23 parks in 1968. Museums, exhibits, publications, labell trails and personal services such as conducted trips, illustrated talks, and special group programs are the bastechniques in these services.

Notable program additions in 1968 were the installation of an audio-visual program about Algonquin Park in the Algonquin Park Visitor Centre, the opening of a naturalish headquarters and display area in Pinery Park, and opening a new exhibit centre at Serpent Mounds Park.

Services were expanded through the addition of naturalists to District Offices at Cochrane, Tweed and Maple and an assistant for the program in Algonquin Park.

In the area of research, programs were initiated to doc ment (1) the history of the Sibbald family and their hom n Sibbald Point Park, (2) the sites of historical and archaeogical significance along the Mattawa River, (3) the Hudson Bay Post site at Fort LaCloche, and (4) the extent of the Huron village site at Methodist Point Park Reserve.

NATURE RESERVES

Nature reserves are Class V parks as described under the Park Classification System (1967). Areas so designated may be within existing parks or may be Provincial Parks within heir own right. These designated reserves will be living nuseums, encompassing unique and representative segments of our flora and fauna, as well as unique geological and historical areas. In addition to preservation, these areas will serve an important role in education and research programs.

To assist the Branch in this program, an advisory comnittee to the Minister has been established. This committee will recommend the broad fields of interest and study which should be represented in the system of nature reerves as well as recommending specific areas which should be established.

NOWMOBILE TRAILS

he rapidly increasing need for snowmobiling areas has een met in part by the Provincial Parks system. Roads or ther specially designated areas are now available for snownobiling in most Provincial Parks. It has been necessary to rohibit or restrict their use in certain parks to protect the vilderness environment, deer wintering areas, or fragile cological, geological and historic areas within these parks.

Snowmobiles are prohibited in:

- 1. Sandbanks Provincial Park
- 2. Serpent Mounds Provincial Park
- 3. Killbear Provincial Park
- 4. Quetico Provincial Park

Snowmobiles are restricted in:

- 1. Algonquin Provincial Park to travel only on the following lakes: Canoe, Cache, Bonita, South Tea and Smoke.
- 2. Lake Superior Provincial Park to travel only on the Midjin Lake Road and Midjin, Maquon, Almonte, Wabigoon and Mirimaki Lakes.

In conjunction with other winter sports facilities, approxnately 17 miles of snowmobile trail were developed in inery Park.

The three new cross-country trails, totalling 65 miles, stablished over Crown lands near Coldwater and Parry ound, will provide information on problems of main-rance and user control on which any expansion of this rogram will be based.

ACCESS POINTS

The establishment and maintenance of public access points will ensure public access to the major water systems of Ontario and will provide one of the means by which it will be possible to control and reduce the accumulation of refuse and litter on our public lands.

During 1968, improvements and maintenance were carried out on some 475 public access points, and a number of new sites were developed across the province. Longrange plans for recreational development will include an expansion of this program to provide for increasing public travel into areas where new road access has been constructed. The development of picnic and rest stops, for water-oriented recreationists using small craft along the Trent-Severn and Rideau System and the Georgian Bay Islands, has received favourable public response.

CANOE ROUTES

The program of documenting, mapping and improving of portages on major canoe routes is proceeding in conjunction with other work programs of the Department. In response to increasing public demand for information on canoe areas, a provisional brochure, "Canoe Routes in Northern Ontario", was widely distributed.

HIKING TRAILS

Several hiking trails have been established on Crown lands, and plans are underway to assist private agencies in providing for this activity by the construction of overnight trail shelters, and sanitary and water facilities at appropriate locations where these trails cross lands administered by the Crown.

PARKS CERTIFICATE COURSE

The first Parks Certificate Course was held in Algonquin Park from October 21 to November 8. This in-service training course was aimed at broadening and up-dating the knowledge of the Department's parks personnel. Twenty-four candidates, made up of Park Supervisors, Park Superintendents, and Park Naturalists, attended the course. Master planning, site planning and park interpretation were dealt with in detail within a broad concept of recognition of basic park values.

FEDERAL-PROVINCIAL PARKS CONFERENCE

Ontario was the host for the 7th Federal-Provincial Parks Conference which was held in Algonquin Provincial Park from September 30 to October 4. All of the 10 Provinces and the Federal Government were represented at the conference. The theme of the conference was "Use and Understanding". The many excellent presentations and discussions relating to this theme made the conference an unqualified success.

RECORD OF PARK USE AND PARK FACILITIES IN 96 PROVINCIAL PARKS

					Sv
Park District Park Classification	Vis: 1967	tors . 1968	Carr 1967	1968	Camping E Units
CHAPLEAU Ivanhoe Lake Natural Environment Five Mile Lake Recreational Park *Missinaibi Lake Natural Environment *Wakami Lake Wild River Park	29,029	25,660	4,430	5,825	144
	3,277	5,658	2,581	3,338	87
COCHRANE Greenwater Natural Environment Kettle Lakes Recreational Park Polar Bear Primitive Park Tidewater Natural Environment	21,158	20,465	2,624	3,034	51
	56,408	34,593	4,988	4,569	95
	—	—	—	—	
FORT FRANCES Caliper LakeRecreational Park Lake of the Woods Natural Environment QueticoNatural Environment	25,878	20,442	5,836	7,146	92
	26,502	30,794	2,228	2,580	100
	75,102	54,515	8,720	9,651	135
GERALDTON Blacksand Natural Environment Klotz Lake Recreational Park MacLeod Recreational Park Neys Natural Environment Rainbow Falls Recreational Park	14,467	29,118	4,512	4,703	73
	14,166	14,230	2,942	2,834	· 33
	50,986	26,332	4,063	4,861	80
	41,373	42,077	13,867	13,110	204
	62,317	68,250	24,766	21,118	90
KAPUSKASING NagagamisisNatural Environment Remi LakeRecreational Park	15,592	17,792	2,457	2,591	80
	41,493	42,565	4,880	4,157	80
KEMPTVILLE Fitzroy Recreational Park Rideau River Recreational Park Silver Lake Recreational Park South Nation Recreational Park	122,934	101,726	14,972	10,100	240
	189,136	170,315	14,527	8,650	186
	102,259	85,765	13,977	9,633	197
	62,099	36,728	7,317	2,837	28
KENORA Aaron	58,013	47,006	12,581	9,928	70
	29,266	32,293	8,530	9,292	125
	135,366	110,423	15,716	22,540	160
	22,708	38,227	4,433	4,415	70
LINDSAY Balsam Lake Recreational Park Darlington Recreational Park Emily Recreational Park Ferris Recreational Park Mark S. Burnham Recreational Park Presqu'ile Natural Environment	69,669 206,367 149,108 — 15,402 239,925	69,797 109,006 149,072 — 12,433 238,946	11,663 40,073 15,334 — 61,903	17,944 20,637 14,863 — 30,929	400 400 240 — 500
Serpent Mounds Natural Environment *Statistics not available.	124,173	175,188	14,575	16,476	130

nfort	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Ramp
-	24 32	17 4		1 1 ¹ / ₄	
1	20 46	15 45	salvasamenta Tarantamenta	5 ³ / ₄ 5 ¹ / ₂	2
•	4	11/2	_	1/4	_
1	11 22 18	5 10 —	<u> </u>	1 4	1 2 1
- - -	21 8 20 14 32	6 2 5 2 5		9 - 2 1 2	1 1 2 —
-	36 18	38 30		1/4	1 1
	38 20 20 6	22 ¹ / ₂ 22 2 ¹ / ₂ 8			2 2 1 1
	24 24 30 14	7 3 23 2		1/ ₂ — 1/ ₂	1 2 1 1
	17 42 22 6 4 48 17	20 120 25 20 4 110 30	1 1 2		2 2 3 — — 2 ued



Campers at Oastler Lake Provincial Park.

RECORD OF PARK USE AND PARK FACILITIES IN 96 PROVINCIAL PARKS

			Violtara			Campers		Camping
Park District	Park Classification	1967	Visitors	1968	1967	Campers	1968	Units
LAKE SIMCOE								
Bass Lake	Recreational Park	135,538		109,421	16,654		22,025	153
Devils Glen	Recreational Park	82,520		58,210	3,359		2,496	80
Earl Rowe	Recreational Park	221,003		235,595	14,716		23,342	425
Mara	Recreational Park	60,161		58,009	6,622		9,995	100
Sibbald Point		270,505		274,184	28,519		27,374	725
Six Mile Lake	Recreational Park	112,646		100,964	15,844		16,059	180
Springwater .:	Recreational Park	85,840		71,143				
Wasaga Beach	Recreational Park	1,025,677		830,149	demonstrate			_
LAKE ERIE								
Holiday Beach	Recreational Park	98,737		92,087	4,183		2,631	56
Ipperwash		182,420		277,329	16,402	2	19,413	266
John E. Pearce	Nature Reserve				_	1		_
Long Point	Recreational Park	217,164		246,698	18,065		20,325	327
Pinery	Natural Environment	498,272		500,303	61,645		72,821	1,125
Port Bruce	. Recreational Park			—	-			· —
Rock Point	Recreational Park	36,271		37,372	5,101		4,186	47
	Natural Environment	597,592		512,313	38,389		36,406	433
Selkirk	. Recreational Park	35,158		33,805	2,832		2,529	168
Turkey Point	Natural Environment	209,719		249,949	14,608		10,191	472
Wheatley	Recreational Park	74,642		66,462	6,552	2	6,573	120
LAKE HURON								
Craigleith	Recreational Park	67,614		42,561	14,617	7	11,028	172
	Natural Environment	186,181		173,820	18,707	7	13,122	324
Point Farms		65,896		80,696	7,762		6,490	146
Sauble Falls	. Recreational Park	122,395		130,394	12,28		11,434	215
NORTH BAY								
Antoine	. Recreational Park	3,224		9,864	1,604	1	1,354	30
Finlayson Point		79,242		36,244	8,78	5	7,334	136
Marten River		76,327		43,047	14,182	2	11,167	234
Samuel de Champlain	Natural Environment	94,595		59,666	19,420	5	8,413	224
PARRY SOUND								
Arrowhead	. Recreational Park	16,437		57,562	4,288	3	12,023	102
Grundy Lake	. Natural Environment	175,612		170,454	29,880)	43,759	537
	. Natural Environment	312,312		306;967	28,139	9	55,174	878
Mikisew		55,375		43,213	6,67	7	13,415	256
Oastler Lake	. Recreational Park	156,389		196,370	15,34.	5	21,213	170
Restoule	. Natural Environment	28,086		41,466	3,60	7	11,109	229
Sturgeon Bay	. Recreational Park	24,751		65,111	6,14	2	9,896	87

fort ons	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Ramps
	16 3 29 10 48 34 2	18 5 40 21 ¹ / ₂ 130 15 63 262	1	1	
	6 2 4 8 71 2 8 12 10 32 13	83 8 2 16 20 4 ¹ / ₂ 15 40 12 29 33	1 1	6	1 2
	2 22 4 3	12 19 ¹ / ₂ 10 9 ¹ / ₂	1 1 —	3/4	1 1
	4 21 66 35	13 4 ¹ / ₄ 46 15	_ _ 1		1 1 3 5
	50 102 150 32 18 43 16	1 8 30 10 2 12 1/4	 	2 4 ¹ / ₂ 1/ ₄ - 2 - contin	2 5 4 1 1 2 1



Children fishing, Killarney Provincial Park.

Trailer site, Restoule Provincial Park.



RECORD OF PARK USE AND PARK FACILITIES IN 96 PROVINCIAL PARKS

		Visitors	Car	mpers	Camping	В
Park District Park Classification	1967	1968	1967	1968	Units	
PEMBROKE	· · · · · · · · · · · · · · · · · · ·			445 570	1 260	
AlgonquinNatural Environment	543,311	632,823	89,835	115,579	1,369	
Bonnechere Recreational Park	7,959	10,367	1,641	1,308	60 46	
Carson Lake Recreational Park	5,180	6,969	5,109	3,302 6,818	98	
Oriftwood Recreational Park PORT ARTHUR	12,425	8,860	- 10,259	-,-		
nwood Recreational Park	26,291	25,670	17,138	6,794	62	
Kakabeka FallsNatural Environment	363,923	252,125	29,549	21,831	149	
Middle FallsRecreational Park	28,746	35,426	3,734	3,166	20 180	
Sibley Natural Environment	27,368	45,885	9,550	3,977	100	
SAULT STE. MARIE BatchawanaRecreational Park	38,502	21,950				
ake Superior Natural Environment	145,127	147,699	37,892	35,727	315	
Mississagi Natural Environment	21,617	27,577	2,980	3,180	38	
Pancake Bay Recreational Park	88,183	124,201	28,849	23,860	278	
SIOUX LOOKOUT	5,926	1.880	1,140	1,239	68	
Ojibway Recreational Park Pakwash Recreational Park	6,475	6,235	1,561	1,143	57	
SUDBURY						
Chutes Recreational Park	210,131	64,756	22,354	11,763	91	
Fairbank Recreational Park	78,861	57,948	12,099	5,545	132	
Killarney Natural Environment	62,590	45,524	3,006	3,143	102	
Windy Lake Recreational Park	95,073	71,544	6,033	2,582	76	
SWASTIKA Esker LakesNatural Environment	20,954	20,261	3,457	3,536	136	
Kap-Kig-Iwan Natural Environment	31,842	27,684	3,217	3,647	64	
TWEED						
Black Lake Recreational Park	69,941	54,089	11,878	8,545	200	
Bon Echo Natural Environment	138,808	134,769	19,719	17,767	400	
Lake on the Mountain Recreational Park			2.076	2.005		
Lake St. Peter Recreational Park	33,685	29,639	3,076	2,805	60	
North Beach Recreational Park	48,724	•	25,096	27,363	480	
Outlet Beach Natural Environment	413,895	379,271	25,096	27,363 —	400	
Sandbanks Natural Environment	75,255	46,477	_			
WHITE RIVER ObatangaNatural Environment	26,257	15,300	13,338	10,177	85	
White Lake Recreational Park	127,019		21,041	14,057	225	
PROVINCIAL TOTALS	9,791,671	10,192,533	994,787	1,155,091	17,201	

			man panta,		
t	Pit Toilets	Picnic Areas (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Ramps
	252 26 10 20	7 1 1	2 — —	8 	4 1 1
	12 14 4 38	2 32 6 25		$\frac{3^{1}/2}{-15^{1}/2}$	
	6 68 14 14	10 53 ¹ / ₂ 8 ³ / ₄ 8 ¹ / ₄			
	18 28	7 7	0x+17ama	2	3
	39 22 33 30	10 12 2 100		1 1 ¹ / ₂ 7	_ 1 1 1
	32 28	35 30	1	5 4	1 —
	30 79 — 20 14 86 24	10 35 4 5 60 200 40		4 	3 3 - 2 1 4
	30 44	10 8	_	1 ¹ / ₄	1 1
	2,577	2,3503/4	15	139	127



Beach, Five Mile Lake Provincial Park.

SUMMARY OF ATTENDANCE FOR INTERPRETIVE PROGRAMMES

In year ending March 31, 1969

ALGONQUIN PROVINCIAL PA	\RK	
Park Museum (estimated)	149 days	199,435
Pioneer Logging Exhibit	110 days	94,473
Conducted Trips	59 trips	4,545
Labelled Trails	7 trails	74,504
Lectures, A/V Programmes		49,165
Special Groups	33 groups	1,407
	Total	423,529
RONDEAU PROVINCIAL PARI	<	
Park Museum	114 days	25,412
Conducted Trips	46 trips	435
Lectures	45 programmes	1,680
Special Groups	44 groups	940
Labelled Trails	3 trails	no record
	Total	28,467
SIBBALD POINT PROVINCIAL	PARK	_
Museum		17,429
PINERY PROVINCIAL PARK		
Exhibit Centre	79 days	11,071
Conducted Trips	73 trips	4,488
Outdoor Theatre Programmes	19 programmes	8,350
Labelled Trail	1 trail	no record
Special Groups	16 groups	527
· ·	Total	24,436
QUETICO PROVINCIAL PARK		
Park Museum	72 days	7,224
Conducted Trips	30 trips	561
Labelled Trails	6 trails	3,312
Outdoor Theatre Programmes	24 programmes	2,557
Special Groups	21 groups	339
	Total	13,993
SIBLEY PROVINCIAL PARK		
Conducted Trips	47 trips	597
Labelled Trails	3 trails	838
Outdoor Theatre Programmes	20 programmes	2,096
outdoor rivedice rive grammes	Total	3,531
LAKE SUPERIOR PROVINCIAL	PARK	
Conducted Trips	11 trips	173
Labelled Trails	1 trail	955
Outdoor Theatre Programmes		2,103
outdoor theatre Hogianines	Total	3,231
	Total	3,431

PRESQU'ILE PROVINCIAL PAR	K	
Park Museum	94 days	21,601
Conducted Trips	46 trips	704 5 431
Outdoor Theatre Programmes Labelled Trails	27 programmes 2 trails	5,431 4,073
Labelled Italia	Total	31,809
INVERHURON PROVINCIAL P.	ARK	
Exhibit Centre		18,707
PETERBOROUGH PETROGLYP		20.000
	166 days	20,000
DARLINGTON PROVINCIAL P	ARK	1,200
Pioneer Home		1,200
KILLBEAR PROVINCIAL PARK Conducted Trips	22 trips	739
Outdoor Theatre Programmes	29 programmes	9,400
Labelled Trails	1 trail	5,21
	Total	15,350
GRUNDY LAKE PROVINCIAL F		400
Conducted Trips Outdoor Theatre Programmes	11 trips 23 programmes	199 6,415
Labelled Trails	1 trail	2,358
	Total	8,972
OTHER PROVINCIAL PARKS		
WITH LABELLED TRAILS		2.000
Kap-Kig-Iwan		2,800 2,000
Rushing River Kettle Lakes		480
Lake St. Peter		3,000
Neys		1,500
Blacksand		800
McLeod Rainbow Falls		1,000 2,500
White River		300
OTHER PROVINCIAL PARKS		
WITH OUTDOOR THEATRE P	ROGRAMMES	
Kap-Kig-Iwan	19 programmes	1,388
Kettle Lakes Neys		4,235 582
Blacksand		516
McLeod		44!
Rainbow Falls		948



Forest Protection Branch is divided into two sections with duties and responsibilities as follows.

FOREST PROTECTION

- Forest Fire Control: Administration of The Forest Fires Prevention Act; organization of fire districts and the fire warden system; supervision of fire control planning and Preparedness; fire prevention programs including a system of travel, fire and work permits; co-operative fire prevention and control agreements with municipalities, railways, forest industries and other agencies; detection of forest fires, and fire danger warnings; training of staff and co-operators in fire control techniques; prescribed burning; co-ordination of fire suppression; and movement of resources and emergency arrangements.
- Forest Pest Control: Prevention and control of damage by insects, diseases and other pests affecting forests under Department management; and advisory services.
- Communications: Planning, installation and operation of radio, telephone and teletype services for fire control and other Department requirements; and construction of specialized communication equipment.
- Plant and Equipment: Planning, budgeting and supervision of Departmental construction, equipment and sign programs; inventory of Department establishments; liaison with Department of Public Works; prescribing equipment complements, maintenance and replacement standards; and vehicle records, licensing and insurance.

AIR SERVICE

Operation of a fleet of aircraft to meet flying requirements of the Department and special needs of other Government Departments; selection and training of pilots and air engineers; deployment of aircraft and crews; establishment of airbases, fuel distribution and caches; selection of aircraft equipment and development of special equipment; leasing and disposition of helicopters and other aircraft; checking pilot proficiency; and the overhaul and maintenance of aircraft.

FOREST PROTECTION SECTION

FOREST FIRE CONTROL

FOREST FIRE OCCURRENCE

For the second consecutive year, the Province of Ontario experienced a relatively light fire season. A total of 1,219 fires burned 9,478 acres, and fire damage was correspondingly low. Acreage burned proved to be the second lowest since the inception of formal Provincial fire records in 1917. Of the 1,219 fires, 89 per cent were controlled at 10 acres or less in size, and 10 per cent between 10.1 and 100 acres. Except for one 750-acre occurrence, the remaining one per cent were in the 100-500 acre range.

Fire danger conditions commenced very early in the season, and burning index ratings reached extreme on many occasions throughout the spring period. During April and May, fires occurred at a record-setting pace, and by May 31st 854, or 70 per cent of the season's fires, had occurred and 8,957 acres, or 95 per cent of the season's total acreage, had burned. With the advent of cool, rainy weather in early June, fire danger conditions were favourably modified and they remained so throughout the balance of the fire season.

When related to the previous five-, and 10-year fire occurrence averages for the Province, the 1968 total of 1,219 fires is 74 per cent of the former and 82 per cent of the latter.

The area burned, which was 9,478 acres, was 26 per cent of the previous five-year average of 36,416 acres and six per cent of the 10-year figure of 145,393 acres.

Forest recreation continued to lead all other causal agencies as the major cause of forest fires in Ontario.

FIRE CONTROL OPERATIONS

The 7.7-acre average fire size for 1969 compares quite favourably with the previous 10-year figure of 10.8 acres and reflects the benefits of the early detection and fast hard-hitting initial attack concept adopted in the Province.

The basic Land and Forests suppression force, comprised of 120 five-, or seven-man unit crews strategically located across the fire districts, took initial action on 752 fires. Municipal forces, organized under the fire warden system, initially attacked 241 outbreaks. The public, timber licencees and other agencies initially dealt with 226 fires. Water bombing again proved successful on many fires. Of the water dropping actions taken, 24 comprised the initial attack.

Aerial detection operational evaluation programs continued in six districts. Results indicated that organized detection systems, using aircraft supplemented by towers, can provide the required coverage in an efficient manner. Such systems will become operational in four of these districts in 1969. Evaluation programs will continue in the other two districts, and a further two will begin the operational study process.

TRAINING

The Fire Suppression Course I program was conducted by local staff on a Regional rather than a Provincial basis, as in previous years. Some sixty personnel were graduated from the program, bringing the total to 381 since the inception of the course in 1962.

Three senior staff members attended a national fire simulator course organized by the Associate Committee on Forest Fire Protection and presented by the Alberta Forest Service. One attended the United States Forest Service four-week fire management program.

A portable fire simulator unit was built for use in training initial-attack Fire Bosses. The device presents a fire scene, and through a series of audio and visual inputs a "like-real" fire problem is created. Trainees act as fire boss and direct a control action.

A further 36 fire personnel attended the Department's Fire Weather Course.

FIRE PREVENTION

The first in a series of audio/visual 35 MM slide tape presentations on forest fire prevention planned for use in Provincial Parks and in other areas of the prevention program came into use. This initial presentation, comprising 62 slides, is approximately eight minutes in length and covers the safe use of fire while in the forest.

The film "Flames in the Forest", originally produced in 1963, which portrays fire control operations as conducted in Ontario, was revamped and updated.

A four-minute radio program, oriented to forest fire prevention, was broadcast on the northern Ontario network of the C.B.C. each weekday during the fire season. The program outlined the daily forest fire danger and occurrence situation in the Province and provided the opportunity for staff to give timely prevention messages. It will be continued in 1969.

DEVELOPMENT WORK

The possibilities of incorporating the use of long-term fire retardant chemicals into control operations were examined Tests involving aircraft, equipped with the integral floatank system, and truck tankers indicated that such chemical control of the control of

cals would enhance our control capabilities. Studies are to continue in 1969.

RESCRIBED BURNING

some 4,515 acres were burned by 28 prescribed fires, nainly for purposes of preparing sites for silvicultural treatment and reducing slash hazard situations.

GENERAL

The following publications were printed during 1968: Sferics, Radar, Thunder Report, Lightning Storm Tracking System.

A Report on the Infra-Red Forest Fire Detection and Mapping System.

An Analysis of 1967 Detection Evaluation and Improvement Programs in Kenora and Fort Frances Districts. Kenora Detection Program 1968.

Under the national mutual-aid arrangement, two teams of fire supervisors were dispatched and saw action in alberta during their May fire emergency situation.

A Swastika District crew were again the winners of the Provincial Nozzle Crew Competition. The competition, which involves all fire crews through a series of playdowns, erves to maintain a high level of preparedness and esprit le corps within the basic fire organization.

LANNING

n 1968, a new Planning Unit was set up under the Protecton Section of the Branch. The Unit will be responsible for the development of long-range provincial forest fire control plans and will provide technical guidance in planning the Regional and District levels.

OREST PEST CONTROL

URVEYS

the insect presenting the greatest threat to Ontario's forests the spruce budworm, and the new outbreaks, which were eported in 1967, continued in 1968. The area of greatest oncern, west and south of the Shebandowan Lakes in Port of the Project of the Insect of the Well-efined nature of this infestation and the high forest values to stake, it was sprayed in 1968 (see section on Control), the objective in spraying was to completely eliminate the offestation, and while the project was generally successful, dangerous residual population of budworm remained in core area of almost 35,000 acres. This area will be studied losely for possible further control operations in 1969. A mall infestation of long-standing in the French Lake area

of Fort Frances Forest District was also sprayed, and it too still has a potentially dangerous residual population. Apart from the French Lake area and the Shebandowan-Burchell Lake area, the budworm was not a problem in northwestern Ontario.

However, the spruce budworm was quite active in many areas in other parts of the Province. In northeastern Ontario, the insect was especially noticeable northeast of the Town of Chapleau, along the Chapleau-Kapuskasing District

On the fire line, communications are by radio.



boundary, and immediately west of the City of Sudbury. Because of the scattered nature of these developing outbreaks and the relatively low economic importance of the stands containing balsam and white spruce, it was not feasible to aerial-spray with insecticide in an attempt to prevent their development

In southeastern Ontario, the budworm also caused noticeable defoliation of white spruce and balsam trees throughout many sections of the Ottawa Valley from Mattawa to Ottawa, and into some areas south and southeast of Ottawa.

The jack-pine budworm, a close relative of the spruce budworm, has occurred in large numbers in many areas of the Province since 1966. In 1968, there was some reduction in activity of this insect in northwestern Ontario, but it still caused severe defoliation of jack-pine stands over about one-half of Kenora Forest District. Some top-killing of trees occurred on poor sites. The insect also caused considerable defoliation throughout parts of central and eastern Ontario, notably at locations in the Forest Districts of Sault Ste. Marie, Sudbury, Parry Sound, North Bay and Pembroke. In High-value stands, such as at the Kirkwood Unit of Sault Ste. Marie where it is defoliating red pine as well, and near Lake Traverse in the Pembroke district, the budworm is being observed carefully for possible need for spraying in 1969. Outbreaks of this insect are not usually sustained to the point of causing significant mortality of trees.

The forest tent caterpillar epidemic, which in 1967 occurred mainly in poplar stands in the Fort Frances and Sault Ste. Marie districts, declined to a relatively unimportant level in 1968. Populations persisted in an area of about 400 square miles surrounding the town of Fort Frances, and in an area of almost 800 square miles along the southern portion of the Sault Ste. Marie district. In 1969, the outbreak should decline further.

In 1968, the European pine sawfly did not add significantly to its range in an easterly direction, and the eastern extremity remained in the area of Belleville and Prince Edward County. Since its introduction to Ontario near Windsor about 1940, it had been spreading eastward at a rate of 15 to 20 miles each year. The insect occurs also on Manitoulin Island, and in 1968 was found for the first time on ornamental plantings in the Cities of North Bay and Sault Ste. Marie.

The saddled prominent is an insect which defoliates hardwood stands in a spectacular fashion similar to the forest tent caterpillar. Prior to 1967, noticeable outbreaks of this insect in Ontario had been recorded on only two or three occasions. In 1967, woodlots in three townships surrounding Orillia were infested, and in three townships near Owen Sound. In 1968, some of these outbreaks expanded

and new centres developed with the result that seve defoliation occurred in Eastnor, Albemarle and Kepp Townships in the Lake Huron district, and in Oro ar Medonte Townships and on Christian and Beckwith Island in the Lake Simcoe district. The latter district also had less infestations in Adjala, Tiny, Whitchurch and Uxbridg Townships. Of particular interest was a new outbreak about 1,000 square miles in the eastern part of the Par Sound district, extending into the western portion of Algo quin Provincial Park. Although the current outbreaks the saddled prominent are by far the most severe ever recorded in Ontario, past experience here and in the U.S. indicates that it persists for only two or three years in ar locality and therefore seldom causes permanent injury trees.

The most noticeable tree disease in Ontario is the Dute elm disease. There was little extension of range during 196 probably because the disease is as far north as Sudbury ar Sault Ste. Marie, and further spread northward into the northern forests, where elm is a minor species, will be much slower.

The Scleroderris canker, a relatively new problem which often kills red and jack pine seedlings, did not increase intensity or range during 1968. On the other hand, Fom annosus root rot, a serious threat to the management pine plantations, was found for the first time in the important Larose Forest, Kemptville Forest District. It is no known to occur in parts of the Lake Erie, Lake Simco Lindsay and Kemptville districts. Steps are being taken limit the spread of outbreak centres and to prevent furth infections.

In 1968, a dying-back of branches was very noticeable in mature and over-mature stands of yellow birch over total area of about 2,500 square miles in the Sault Ste. Mar district and in Algonquin Park, giving the trees a greyical appearance when viewed from a distance. The most a parent explanation is that the extremely heavy seed cross of 1967 resulted in poorly formed buds near the branch tips, and most branch tips died. Most of the trees a expected to recover.

CONTROL OPERATIONS

Immediately following World War II, the insecticide DD became established as the most efficient and versatile is secticide ever discovered, and consequently revolutionize pest control around the world. However, its durability persistence lead to controversies in many countries concerning the long-term effects on other living things, particularly fish and wildlife. Early in 1968, the Department became one of the first government agencies in Canada to discontinue completely the use of DDT.

The aerial spraying project in the Port Arthur district, to eliminate the developing spruce budworm epidemic, constituted the largest, single insect control project ever undertaken by the Department. Eighteen privately owned stearman spray planes, operating in four teams and guided by Cessna aircraft, sprayed a single area of 275,000 acres. The area received one application of fenitrothion of 6 oz. of chemical in approximately one-fifth gallon of water per acre, followed by a second application of phosphamidon at 4 oz. per acre. The rates were chosen carefully to give maximum control of the budworm, with an acceptable hazard to wildlife. Special field studies, before, during and after the spraying, confirmed that these rates did not kill fish or affect bird population, and yet gave good control of the budworm.

The year 1968 also saw the Department's first attempt to control the jack-pine budworm. A total of 1,000 acres in two parks in the Kenora district were sprayed by aircraft, using fenitrothion.

The regular program to control the white-pine weevil continued in 1968, with approximately 6,000 acres being treated with aerial and ground spraying equipment, and by and-clipping and burning infested leading shoots. About two-thirds of the treated area was sprayed by aircraft using the insecticide methoxychlor, which represents the first such use in Canada.

Approximately 5,200 acres of pine and spruce plantations were sprayed for control of sawflies, principally the redneaded pine sawfly, the yellow-headed spruce sawfly, turopean pine sawfly, and the jack-pine sawfly.

About 400 acres of sod-covered sites were treated for control of white grubs, and a similar acreage on similar sites for control of mice where these pests threaten the survival of newly planted trees.

The major tree-killing disease in the forests of Ontario is the blister rust of white pine. A substantial disease-control program has been in progress for several years in specific areas managed for production of white pine. The disease is controlled by using the herbicide 2,4,5-T to kill the obligate alternate host plants, wild currants and gooseberries, in the mmediate vicinity of the pines. In 1968, about 6,700 acres of high-value young white pine stands were protected against the rust in parts of the Sault Ste. Marie, North Bay, Pembroke, Lindsay, Tweed and Kemptville districts.

The occurrence of Fomes annosus root rot in plantations of southern Ontario is prevented by the application of odium nitrite to the freshly cut surface of stumps during hinning operations. This program is increasing with the aim of treating all stumps in southern areas with the chemical. In 1968, more than 1,800 acres were treated.

COMMUNICATIONS

Resultant from favourable evaluation of Telex installations at 10 district office points as well as at Head Office, in 1967, all 21 district offices were installed during the 1968 season and Telex became the main point-to-point communication medium for the province. Both H.F. and V.H.F. radio continued in use throughout the field mainly for uses other than the above service but, additionally, as a back-up for the Telex.

VHF radiotelephone installations were made at Christmas Lake Park in the Sault Ste. Marie district and at Earl Rowe Park and Vivian County Forest Headquarters, both in the Lake Simcoe district. Total number of ground radio stations in the system now numbers 176 headquarters, parks etc.

Major radio purchases consisted of 10 aircraft VOR navigation systems, six aircraft VHF communication transceivers, seven aircraft Single Sideband transceivers, one aircraft Transponder installation, two fifty watt VHF radiotelephones, three twenty-five-watt radiotelephones; 44 low powered VHF radiotelephones, 24 fifty-watt VHF fire-base camp portables, one 120-watt Single Sideband base station transceiver, and six Single Sideband low powered portable sets.

1968 inventory by quantity and types of equipment used was:

- 352 Lookout tower VHF radiotelephones
- 618 Mobile VHF radiotelephones
 - 16 Patrol vessel radiotelephones (H.F. and/or VHF)
- 1344 Portable radiotelephones of all types and power outputs, both H.F. and VHF.
- 339 Fixed location ground station radio-telephones of all types and powers, both HF and VHF.
- 41 Aircraft Radio Installations (5 systems per aircraft.)
- 74 Portable VHF aircraft installations for installation in other than Government aircraft.
- 20 Aircraft Ground Hailers

2804 Units in total.

FC	R	EST	FIRES	BY	CAUSES	, 1968
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FOREST FIRES BY CAUSES, 1968		
General Causes	Fires	Acres
Lightning	79	194
Industrial—Logging	18	630
Industrial—Other	44	355
Recreation	356	1804
Railway	141	1506
Railway	141	1506
Incendiary	32	313
Miscellaneous	270	2622
Unknown	17	61
TOTAL	1219	9478
Sources of Ignition		Fires
Lightning		79
Smoking Material		325
Camp Fires		117
Grass Burn		76
Rubbish Burning		70
Unknown		64
Matches		127
Brush Burn		42
Garbage Dump Burn		49
Right-of-Way Burning		15
Brake Shoe		72
Diesel Locomotive		33
Steam Locomotive		
Hot Box		3
Fusee		2
Tie Burning		
Structural Fires		29
Power Line (Short Circuit)		26
Sparks from Chimney		6
Fireworks		25
Power Saw		1
Mechanical Equipment		12
Sparks from Burner		3
Sawdust Pile Burning		
Burning Bulldozed Piles		7
Explosives		1
Dumped Live Coals or Ashes		8
Miscellaneous (Known)		27
Prescribed Burning		-

1,219

Responsible Group	os,
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Lightning	
Fishermen	1
Children	11
Car Passenger	1
Unknown	1
Berry Picker	1
	1
Camper	11
Resident Rural	14
Hunter	ļ
Farmer	
Private Cottager	1
Hiker	1
Resident Urban	
Other Industrial Employee	
R. R. Section Crew	
R. R. Train Crew	11
R. R. Work Crew	
Canoeist	
Picknicker	
Commercial Resort Owner	
Guided Party	-
Train Passenger	
Indian (on reserve)	1
Timber Cruiser	-
Woods Industry Employee	-
Land Survey Party	-
Trapper	
Prospector	
Mining Employee	
Pipeline Employee	-
Hydro Employee	
Highway or Road Employee	
Municipal Employee	
Telephone Co. Employee	
Military	
Miscellaneous	
Lands & Forests Employee	
Other Provincial Gov't Employee	-
Federal Government Employee	
Youth Groups	-
TOTAL	,2
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Suppressing forest fire with water pumped from nearby lake.

FOREST FIRES BY DISTRICTS, 1968

Forest District	Fires	Acres
Sioux Lookout	38	104
Kenora	92	609
ort Frances	16	160
Port Arthur	46	240
Geraldton	29	32
White River	23	45
Kapuskasing	52	200
Cochrane	28	1,445
Swastika	66	939
Chapleau	19	33
Sault Ste. Marie	32	96
Sudbury	121	1,166
North Bay	113	910
Parry Sound	144	636
Pembroke	130	1,102
Tweed	140	1,213
Kemptville	12	14
indsay	86	468
ake Huron	11	17
ake Simcoe	21	49
[OTAL	1.219	9,478

FOREST FIRES BY MONTHS, 1968

Month	Fires	Acres
March	6	75
April	394	4,156
May	454	4,744
June	66	45
July	164	243
August	107	123
September	16	11
October	5	3
November	7	78
TOTAL	1,219	7,478

FOREST FIRES BY SIZE, 1968

Size	Fires
1/4 acre and under	481
Over ¹ / ₄ acre to 10 acres	602
Over 10 acres to 100 acres	118
Over 100 acres to 500 acres	17
Over 500 acres	1
TOTAL	1,219

FOREST FIRES BY MEANS OF DETECTION, 1968

Means of Detection	Fires
Lands & Forests Fire Tower	275
Lands & Forests Aircraft	53
Commercial Aircraft	19
Private Aircraft	6
Lands & Forests Personnel	93
Other Provincial Gov't Employee	35
Outside Agency Fire Tower	1
Other Public	737
TOTAL	1,219

STATEMENT OF FIRE DAMAGE, 1968

Forest District	Merchantable Cu. ft.	Forest Losses \$	Immature Losses \$	Non-Forest Losses \$	Total Losses \$
Sioux Lookout	46,018	1,846	1,667	117	3,630
Kenora	38,163	1,708	4,188		5,896
Fort Frances					
Port Arthur	9,960	580	870	3	1,453
Geraldton			150		150
Kapuskasing	-	*******			
Cochrane	125,885	742	1,625	153	2,520
Swastika			1,000	52	1,052
White River	1,360	41	750	247	1,038
Chapleau	8,075	78	38		116
Sault Ste. Marie			2,150	233	2,383
Sudbury	768	180	8,237	2,346	10,763
North Bay	17,935	155	1,510	145	1,810
Parry Sound	15,503	492	5,612		6,104
Pembroke			3,201	288	3,489
Tweed	8,661	3,278	4,184	590	8,052
Kemptville	200	16	3		19
Lindsay			5,663	-	5,663
Lake Huron				Commencement	
Lake Simcoe	100	8			8
TOTAL	272,628	9,124	40,848	4,174	54,146



AIR SERVICE SECTION

During the fiscal year, five DeHavilland Turbo Beavers and one Model 60 Beechcraft Duke were purchased. Five piston powered Beavers and one Grumman Super Widgeon were sold by public tender.

The "Ontario Integral Float Water Bombing System" wa installed in four of the new aircraft bringing the total wate bomber fleet to ten Otters, twenty-seven Turbo Beavers and one Twin Otter. One Turbo Beaver is equipped with amphibious wheel-floats and is capable of operation from water or airports.

Gelgard fire retardant dispensing systems are installed in thirty-four of the water bombers, i.e. six Otters, twenty seven Turbo Beavers and one Twin Otter. Experimenta testing using Phoscheck 202 and Firetrol long term fire re tardants were carried out in water bombing aircraft; these tests will continue in 1969-70.

Twin Turbo Otter on patrol.

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS, 1968-69

			Commercial		
	Lands & Forests Aircraft	Fixed Wing	Helicopter (Contract)	Helicopter (Other)	Total
Detection		1,180:50			2,431:55
Suppression	572:05	67:55	592:10	28:15	1,260:25
Water Dropping	271:30	2:45		. —	274:15
Fire Ranging, Total	2,094:40	1,251:30	592:10	28:15	3,966:35
Timber	1,334:35	50:55	336:50	6:35	1,728:55
Fish & Wildlife	3,988:05	150:40	284:00	5:15	4,428:00
Lands	544:05	76:40	254:50	10:00	885:35
Parks	571:25	4:30	75:15		651:10
Research	352:20	14:00	:45		367:05
Interdepartmental Flying	895:55	31:00	13:10		940:05
Administration	4,675:00	3:00	293:40	1:30	4,973:10
Total	14,456:05	1,582:15	1,850:40	51:35	17,940:35

	Lands & Forests Aircraft	Fixed Wing	Helicopter (Contract)	Helicopter (Other)	Total
Administration					
Mercy Flights	13:30	Amount of the Control	8:10		21:40
Tests (Radio & Aircraft)					_
Ferrying & Instruction	224:00		224:35		448:35
Entomology	102:10				102:10
Forced Landing & Operations	985:35		7:50		993:25
Transportation	3,349:45	3:00	53:05	1:30	3,407:20
Surveys		_			_
Administration, Total	4,675:00	3:00	293:40	1:30	4,973:10

Twenty-six bases were in operation during the fire season. Twelve bases, using nineteen aircraft, operated year round to provide the flying service necessary in resources management.

Five Bell 47G4 model Helicopters were leased from May 1st to September 30th to provide transportation in forest ire fighting.

Total flying time for the year was 14,456:05 hours; total passengers carried, 32,062; and total loads carried, 11,427,706.00 pounds.

Mercy and Ambulance Flights, totalling 20:55 hours, were carried out by aircraft and helicopters. There were no requests from other provinces for assistance during fire emergencies under the co-operative mutual aid program.

MERCY AND EMERGENCY FLIGHTS, 1968-69

Date

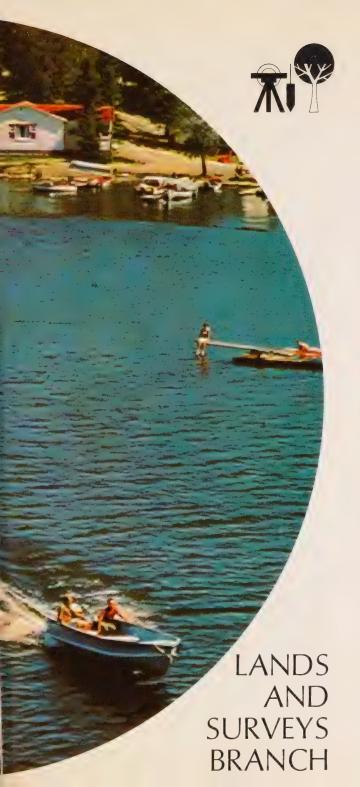
Aircraft

- Julio	711121412		, ,		
May 11/68	CF-OEC	CRAM	Chapleau-Toronto	5:35	Flew 6 year old girl with skull fracture.
May 21/68	CF-OEO	TURCOTTE	Gogama-South Porcupine	1:05	2 year old child with respiratory problems
June 13/68	CF-OER	SWANT	Kenogami-New Liskeard	:50	Dept. of Mines employee—respiratory problems.
June 26/68	CF-OED	CAMPBELL	Perley Lake- Pembroke	1:00	Boy Scout leader wit injured back.
July 22/68	CF-OEE	PHILLIPS	Fushimi Lake- Carey Lake	:20	Injured Junior Ranger.
Aug. 2/68	CF-OED	CAMPBELL	Smoke Lake- Haliburton	:50	12 year old boy with broken arm.
Aug. 5/68	CF-OED	CAMPBELL	White Lake- Canoe Lake	:30	Girl with cut to head.
Sept. 21/68	CF-OEY	BURTT	Port Arthur- Hurckett	1:05	Search for 2 lost hunters.
Jan. 1/69	CF-OEX	TURCOTT	Gogama-Timmins	1:30	Seriously ill infant child.
9 Mercy Flights (Aircraft). Total	12	:45			
Date	Helicopter	Pilot	Journey	Time	Reason
May 12/68	CF-SCD	FLUCKER	Sudbury-Achray	6:05	Search for drowned person.
July 4/68	CF-DHL	BOYD	Headpond Lake- Blind River	1:30	Injured man flown to hospital.
	CF-DHL	BOYD	Peshu Lake-	:35	Injured man flown

Pilot

Journey

Time Reason



Lands and Surveys Branch is divided into four sections with duties and responsibilities as follows.

LANDS

Administration of public lands and their disposition by sale, patent, vesting order, quit claim deed, lease, licence of occupation, or land use permit; release of reservations in patents, assignments and cancellations; and reservation of lands for public and government uses.

LAND ACQUISITION AND PLANNING

Recommendations and applications for purchase of private lands for public uses; development and co-ordination of land use plans in all districts for the management of renewable, natural resources; Recreational Land Inventory Sector of Canada Land Inventory; co-ordination of departmental A.R.D.A. projects; and liaison with Department of Agriculture and Food in private lands and with other Departments on the socio-economic implications of land use objectives.

SURVEYS

Examination, recording and custody of original plans and field notes of restoration of original Crown survey points, retracement and municipal surveys, and surveys of Crown lands for disposition; map compilation; authorization of geographical names; and distribution of maps, publications and copies of survey records.

ENGINEERING

Approval of dams; licences of occupation for dams; flooding and diversions; water resource management; issuance and servicing of Water Power Lease Agreements; engineering consultations; feasibility studies, inspections, reports, planning for fish culture stations, wetland developments, fishways and other fish and wildlife projects; and access roads.

LANDS SECTION

The primary function of the Section is to provide the means whereby individuals and corporations may obtain the public lands they require for various purposes. The usual requirements are for living space (either full-time or part-time residence) and for commercial or industrial uses. Public land may be transferred to private ownership for any purpose except the propagation of the renewable, natural resources administered by the Department. This excludes uses such as tree farming, fish farming and game farming, and large areas for private recreational use.

To carry out this operation, the Section must study land values, answer enquiries, and plan for the orderly and efficient disposal of lands as nearly as possible in tune with the requirements of the population and the economy. Plans for disposal must also ensure that provision is made to preserve adequate areas of land for public and government uses.

Public lands are transferred to private control by sale or rental. The use to be made of the land is always a prime consideration. Except for rental by Land Use Permits, the applicant is required to spend two to ten times the established land value on improvements within a limited time before title passes to him. Thus, the actual price of the land is always considered as secondary to the economic advantages accruing from the new development.

Land Transactions

Year Ending	Land Use Permits	All Other Transactions	Total
March 31, 1969	4930	3140	8070
March 31, 1968	4747	2693	7440
March 31, 1967	4555	2756	7311
March 31, 1966	4382	2481	6863
March 31, 1965	4436	2720	7156

The increase in lands transactions is almost entirely in the recreation sector—cottages, hunting camps and fishing camps. There is also an increasing interest in the development of landing strips or airports on public land. Requests come from municipalities, from interested civic groups and from Indian Bands.

During the year, a program to operate garbage disposal sites, serving the unorganized areas of the province, got under way. At the year's end, 231 disposal sites were being maintained by the Department. In co-operation with local health units, a number of unsatisfactory sites have been

closed, and new sites have been established. This is a very necessary program which must be extended. Such facilities, strategically located and well maintained, are necessary in coping with the problems associated with littering.

Two new restricted areas were set up to control and regulate all improvements on land in unorganized townships near the communities of Chapleau and Temagami. Preliminary studies of areas adjacent to the communities of Cochrane, Shebandowan and Timmins were started, for the same purpose. There are now twelve restricted areas covering about 2,500 square miles in all.

LAND ACQUISITION AND PLANNING SECTION

The Section was formed in 1963 to implement the program announced in the Speech From the Throne in the Fall Session of 1962. This program anticipated the expenditure of \$200 million over a twenty-year period for the purchase of land for recreation, wildlife management, parks, reforestation and other resource management uses.

Since the inception of the program, 340,848 acres had been acquired by March 31, 1969. During the 1968-69 fiscal year, Treasury Board approved 30 projects involving the purchase of 218,606 acres of land. The Ontario Parks Integration Board approved 39 projects involving purchase of 18,822 acres of land. A total of 83 leases were acquired in Algonquin Provincial Park and at Rondeau Provincial Park in keeping with the policy to revert these areas to a wilderness state and to permit public, rather than private, use of certain areas.

Included in the land acquisition program are eight projects that are approved under the A.R.D.A. agreement. During 1968-69, 28,586 acres were acquired under the A.R.D.A agreement.

The Canada Land Inventory is a joint Federal-Provincial project carried out by the Ontario Land Inventory Unit. Under this program, the lands within the A.R.D.A. Agreement Area are evaluated in terms of their capability to produce forest, wildlife (ungulates) and recreational products. During the 1968-69 fiscal year, the program was continued, and a total of 16 map sheets at a scale of 1:250,000 were mapped and submitted to Ottawa for publication.

The Public Lands Act was amended by the inclusion of Part 1A to provide for the designation of public forest roads and for the use of private forest roads by the public Emphasis to date has been placed on devising uniform procedures for the implementation of this amendment, as funds for entering into shared-cost agreements with the occupiers of private forest roads will not be available until the commencement of the next fiscal year.

Ten roads comprising 197 miles are presently designated as public forest roads.

SURVEYS SECTION

ADMINISTRATIVE SERVICES

The main responsibilities discharged by the Subsection are the custody of survey records and the distribution of reproductions for sale and official use, and the distribution and sale of maps and publications produced by the Department as well as the maps produced by the Federal Department of Energy, Mines and Resources, Ottawa.

The quantity of map sheets distributed of the Provincial Topographic Series, at the scale of one inch equals two miles, more than doubled over the previous fiscal year. Seven new First Edition sheets and one Second Edition sheet were received for distribution. Forty-six new map sheets of the National Topographic Series produced by the Surveys and Mapping Branch of the Federal Government increased the quantity of this series distributed by ten per cent over the past year.

Lake Temagami, North Bay Forest District.



Maps of the Territorial Series again decreased in demand due mainly to the availability of the additional larger-scaled topographic sheets on the grid system as well as the substitution of the free map brochure of Algonquin Provincial Park for the two-mile-to-one-inch map, Number 47A, which became out of print.

The numbers of survey records, plans and field notes of summer cottage lot subdivisions and retracement surveys being recorded, catalogued and stored in the Survey Records Library are also steadily increasing annually.

The demand for reproductions of tracings showing the survey fabric of the interior of Townships, Crown summer cottage lot subdivisions, retracement surveys, area plans on the Forest Resources Inventory grid system and surveyors' field notes of surveys made on Crown lands, by the contact dry process and photostat methods as well as map mounting requirements for all Branch and District field office purposes also contributed to the increased work load of this year.

CARTOGRAPHIC MAPPING

PROVINCIAL TOPOGRAPHIC SERIES

This series of maps at one-inch-to-two-mile scale continued with the production of six additional maps and one revised map sheet as follows: Batchawana, Wakomata Lake, Thessalon, Sault Ste. Marie, Biscotasing and Bark Lake, with the revised Gogama sheet being lithographed in four colours. The Ontario Co-ordinate System Grid was introduced on both the Biscotasing and Bark Lake sheets.

TERRITORIAL MAPS

Though total coverage of the province at one-inch-to-eight-mile scale was accomplished with the completion of the plate positives for Map 26, "Kenora Patricia Portion N.E.", the map was withheld from printing pending the resolution of the limits of Polar Bear Provincial Park.

SPECIAL MAPPING

At the request of Research Branch, Map 3269, "Vegetation Patterns of the Hudson Bay Lowlands", was produced in five colours. Measuring 40" x 50", the one-inch-to-ten mile map portrays the delicate yet valuable vegetation vital to the existence of wildlife in the area.

Assistance to other branches and departments was also given in the compilation and production of maps of urgent or special nature. These included the preparation of basis suitable for whiteprint reproduction of the Trent Watershed land status maps at one inch to two miles, to indicate the various classification of public lands as requested by the

Department of Tourism and Information; the Boundary Waters Study area at 1:125,000; and the regular annual production of the Hunting and Fishing Regulation Map folders which were produced in three colours.

ONTARIO MAP CATALOGUE

At the request of the Deputy Ministers Council, compilation of a catalogue of maps produced by all provincial mapping agencies was begun with the selection of a format and cataloguing system. Three thousand source documents were distributed to provincial departments and commissions to solicit entries for the catalogue.

An Index Map of the Forest Resources Inventory Map series was produced in two colours for inclusion in this catalogue.

TOPONYMY

The Ontario Geographic Names Board Act, 1968, provides for the establishment and functions of The Ontario Geographic Names Board which is responsible for the control of geographic nomenclature in Ontario for the preparation of maps or other publications intended for official or public use. The Board is to gather, collate, recommend and record place names and geographical features and to collaborate with the Canadian Permanent Committee on Geographic Names, the federal authority for toponymy in Canada.

During this fiscal year, eighty-eight maps and charts on various scales were edited for correct nomenclature for various federal and provincial agencies, an increase of fifty-seven per cent over the previous year. Approximately 1,500 new names were recommended for approval, and 2,220 new entries were added to the geographic names index records. The addition of geographical co-ordinates to the index was commenced.

LEGAL SURVEYS EXAMINATION

Legal Surveys Subsection carries out drafting and plan examination and prepares instructions for surveys carried out by departmental surveyors, as well as for all surveys carried out by private surveyors to meet the needs of the retracement, restoration, subdivision and inspection programs.

All plans of survey, or plans compiled from available information, leading to any form of alienation of Crown land, were examined for compliance with statutes and departmental policy. These plans included individual summer resort, commercial or industrial locations, water lots and Crown subdivisions. In addition, returns from surveys carried out under instructions, such as retracement, restoration and municipal surveys, which did not lead to aliena-

tion, were examined for compliance with statutes and instructions.

Field surveys for administrative purposes were carried out by staff surveyors with headquarters in Parry Sound and Tweed. These surveyors were engaged in determination of encroachment on Crown Land and extent of ambiguou Crown grants, retracement, inspection and park surveys together with other miscellaneous surveys.

As in the previous year, approximately 2,500 miles of forest access roads were maintained during the fiscal year

The criterion for eligibility for maintenance has not been broadened to include roads other than those used by the Department for pursuit of its programs, but the program has increased steadily, as the Department's capital road construction program has expanded, and reflects to a degree the new policy to maintain some abandoned logging road where it is in the interest of the Department to do so.

DRAFTING SERVICES

Drafting of legal survey plans resulting from Departmenta field survey activities, and the preparation of special maps plans, charts and graphic illustrations required by the operations of the Department, was continued by the Drafting Subsection. In addition, due to the steady demand be Departmental field offices, land planners and the public generally for area plans and for township plans to a scal of four inches to the mile, a pilot project for the production of township plans by private drafting contractors was tried during the past year to supplement continuing Departmental production. The results obtained indicate that similar production will continue in the future.

The location and extent of all new dispositions of Crow land continue to be plotted and designated on office plan to maintain an up-to-date graphic inventory of land statuthroughout the Province.

ENGINEERING SECTION

The Section continues to provide management of water resources through approval of dams under The Lakes and River Improvement Act; determination of the terms and conditions, and preparation of water power lease agreed ments under The Water Power Regulation Act; administration of licences of occupation for dams constructed principally for log driving purposes; and administration of the reconstruction of old dams. In addition, special engineering consultation services are provided in hatchery design and construction, and in fisheries and waterfowl management projects.



Personnel Branch is divided into five sections with duties and responsibilities as follows.

- Employment: Recruitment of staff, including Junior Forest Rangers; recruiting activities at universities and technical schools; job advertising; transfers and promotions; establishment and complement control; and assignment of qualified employees to positions.
- Classification and Job Evaluation: Ensuring that positions are properly classified and recommending the classification of positions; identifying and recording of organization and positions; ensuring that position specifications are produced; classifying positions under the Delegated Authority; and developing class series.
- Training and Special Assignments: Co-ordinating and organizing Department training courses; arranging for employees to attend courses given by outside agencies; liaison with Ontario Forest Technical School and Educational Leave Committee; analyzing Department training needs; evaluating courses; and special assignments.
- Employee Relations: Counselling of employees; improvement of communications between field and head office staffs; investigations of problems relating to personnel; liaison with Staff Relations Branch, Treasury Board and Civil Service Association of Ontario; and maintaining Department program on alcoholism.
- Office Management: Documentation of personnel records; attendance reports and leaves of absence recommendations; processing nominations to staff; transfers; separations; group insurance applications and changes; merit increases; accelerated increases; salary revisions; maintaining personnel files for all Regular and Probationary staff and Group 3 Unclassified; and providing statistical information at the request of other Branches of the Department.

TRAINING

The 1968-9 fiscal year was a year of change. The Forestry Technician Course, started in 1943 by the Department, was phased out with the community colleges taking this course into their curriculum. This permitted the Ontario Forest Technical School to shift its emphasis to in-service training which led to a critical look at all of the Department's training activities; as a result, greater centralization of the Department's training within the Branch has occurred.

Some consultative work with other Branches, in terms of course development, was initiated and will continue as organizational needs dictate. As usual, the five certificate courses in Timber, Fish and Wildlife, Fire Suppression, Lands and Scaling were given, and a new four-week certificate course on Park work was initiated.

Added to this was the development of a new Instructor Training Course incorporating the use of closed-circuit television, or video-tape recording equipment. The course was designed in such a way that formal lectures were almost completely eliminated. The onus was put on the students; they presented practice lessons, criticized the lessons as a group, and then reviewed the whole presentation on the television monitor. Their reviews reinforced the concepts expressed in the preceding discussions.

RECRUITMENT

To provide the Field and Head Office organizations with qualified professional and technical staff, eighteen Universities and eight Forestry Technician Schools were visited in Canada and northern United States.

To streamline the system of handling applications for permanent and summer employment, new forms were developed in collaboration with Systems and Procedures Section to cover interview reports, special applications, staff requisitions, card indexing and performance records.

Newspaper advertising was used to cover specialized positions not normally handled by the campus program.

The Junior Forest Ranger program continued to be attractive to 17-year-olds. A total of 1,706 boys were placed in 75 camps in the northern part of the Province.

CLASSIFICATION

Some 420 class specifications are used in the classification of positions in the Department. The program of reviewing all positions on a three-year rotation continued on schedule. Organization charts and position specifications have been made available to all supervisors of organizational units. A

continuous audit function is carried out to assure equa treatment.

Six classification grievances were dealt with; four were resolved by the Department; and two were heard by the Classification Rating Committee and failed. One dismissal grievance was dealt with and heard before the Grievance Board and failed.

EMPLOYEE RELATIONS

Agreements were reached on hours of work for pilots and air engineers during the operating season and for excess time on forest fires. Exclusions from the bargaining unit were finalized. Effective communication was maintained with the Staff Relations Branch, Treasury Board and the Civil Service Association of Ontario.

A revised indexing system for personnel circulars was established. The objective of clear dialogue between the field and head office was pursued, and conditions were improved.

The program of assisting the problem employee was maintained and included such items as financial and emotional as well as alcoholic; at meetings, emphasis has been placed upon the role of supervisor. The results of this program cannot be assessed on a short-term basis, but there are indications which support the continuation of such ar endeavour.

DISPOSITION OF PERSONNEL

J. W. Giles (Supervisor, Timber Section) was appointed to Regional Director, Southern Region, on January 1, 1969, and Dr. W. R. Henson (Professor of Forest Entomology, Director of Graduate Studies in Forestry, Lecturer in Biology, Fellow in Trumbull College at Yale University) was appointed Chief, Research Branch, on September 3, 1968, replacing D. R. Wilson who had held both positions since January 17, 1968. Mr. Wilson joined the Niagara Parks Commission as General Manager.

A. J. Herridge (Regional Director, North-Eastern Region) was appointed Chief of Timber Branch on July 1, 1968, upon the superannuation of M. B. Morison who had held that position since September 1, 1964. J. W. Lockwood (Land Planning Analyst, Land Acquisition and Planning Section) filled the position left vacant by Mr. Herridge's transfer on July 1, 1968.

G. A. Hamilton (District Forester, Port Arthur) was appointed Chief, Operations Branch, on February 1, 1969; the former Chief, P. O. Rhynas, was appointed Special Assistant to the Deputy Minister on February 11, 1969.

The disposition of senior administrative staff as of March 31, 1969, was as follows:

Deputy Minister: G. H. U. Bayly.

Assistant Deputy Minister: R. D. K. Acheson.

Regional Directors: J. W. Lockwood (North-Eastern); L. Ringham (North-Western); J. W. Giles (Southern).

Regional Forester: T. W. Hueston (South-Central).

Branch Chiefs: R. R. MacBean (Accounts); Dr. C. H. D. Clarke (Fish and Wildlife); W. T. Foster (Forest Protection); R. G. Code (Lands and Surveys); G. H. Ferguson (Law); G. A. Hamilton (Operations); P. Addison (Parks); J. M. Taylor (Personnel); Dr. W. R. Henson (Research); A. J. Herridge (Timber).

District Foresters: G. P. Elliott (Chapleau); L. H. Eckel (Cochrane); R. A. Balkwill (Fort Frances); D. E. Gage (Geraldton); D. A. Fawcett (Kapuskasing); R. M. Christie (Kemptville); K. K. Irizawa (Kenora); W. B. M. Clarke (Lake Erie); F. L. Hall (Lake Huron); F. E. Sider (Lake Simcoe); A. E. Walroth (Lindsay); W. L. Sleeman (North Bay); M. A. Adamson (Parry Sound); J. R. Oatway (Acting) (Pembroke); G. A. Hamilton (Acting) (Port Arthur); J. S. Ball (Sault Ste. Marie); R. A. Baxter (Sioux Lookout); G. A. McCormack (Sudbury); S. R. Hamilton (Swastika); A. H. Peacock (Tweed); W. D. Tieman (White River).

Ontario Forest Technical School: R. W. Hummel (Director).

NEW EMPLOYEES HIRED, 1968-69

	Male	Female	Total
Head Office	95	72	167
Field	255	63	318
Total	350	135	485

TOTAL STAFF, MARCH 31, 1969

/		,		
	Regular	Proba- U tionary	nclassified Staff	Total
Head Office Field	628 1,858	163 322	62 842	853 3,022
Total	2,486	485	904	3,875
Total, March 31, 1968 Total, March 31, 1967	2,304 2,270	490 297	966 777	3,760 3,344
Total complement of positions as at March	31, 1969			3,150
Total regular and prob 31, 1969				2,971
Total vacancies in cor 1969	mplement 	as at Mare	ch 31,	179

PROFESSIONAL EMPLOYEES, MARCH 31, 1969

Foresters Biologists Professional Engineers Miscellaneous	225 83 15 52
Total	375
Number of Ontario Forest Technical School Graduates on Staff	1,088
Number of Licensed Scalers on Staff	942

STAFF TURNOVER OF REGULAR AND PROBATIONARY EMPLOYEES, 1968-69

	Resigned	Dismissed	Retired	Died	Super- annuated	Transfers Inter- Departmental	Misc	Total
Head Office	49	7	6 .	4	10	5	8	89
Field	83	14	9	16	27	7	10	166
Total	132	21	15	20	37	12	18	255

Note: The staff turnover for the fiscal year was 7.58%. This is the ratio of separations to total regular and probationary staff.



Accounts Branch is divided into units with duties and responsibilities as follows.

- Accounting: Supervision of accounting for entire Department; preparation of claims under Federal-Provincial agreements; compilation of costing reports; procedural control and safe keeping of assets; and financial liaison with Treasury Board, Provincial Auditor, and other Government Departments and agencies.
- Revenue: Collection of revenue; maintenance of accounts receivable; supervision of accountable warrant funds; control of collateral securities; and issue of angling and hunting licences and park permits.
- Expenditure: Preparation of payrolls; internal check and payment of accounts payable; processing of refunds; and preparation of data for Public Accounts.
- Budget Preparation and Control: Compilation of estimates and forecasts; and expenditure reporting and control.
- Finance and Cost Analyses: Financial evaluation of plans; and preparation of statistical and financial reports.
- Accounting Systems, and Procedures: Development of accounting systems; preparation of accounting procedural manuals; and development of costing systems.
- Land Tax Administration: Administration of Provincial Land Tax Act; and assessments and appeals.
- Internal Audit: Review and appraisal of accounting, financial and operational controls.
- Systems and Procedures: Provision of systems improvement program for entire Department.
- General: Data processing; and addressograph and mail services.

FINANCIAL REPORT

For Year Ended March 31st, 1969

COMPARISON OF RECEIPTS AND DISBURSEMENTS WITH THOSE OF THE PREVIOUS TWO YEARS

(a) RECEIPTS (Branch)								
	1967 \$	1968 \$	1969 \$					
Provincial Land Tax.	1,772,838	1,761,796	1,754,617					
Fish and Wildlife	6,741,700	6,891,016	8,691,389					
Forest Protection	113,545	163,205	128,821					
Lands and Surveys .	1,470,184	1,519,099	1,952,266					
Parks	2,103,496	2,432,009	2,413,613					
Other	14,980,397	17,057,603	18,657,238					
Other	235,634	155,616	181,460					
Total Receipts .	27,417,794	29,980,344	33,779,404					

(b) DISBURSEME	:N15		
	\$	\$	\$
Chargeable to Ordinary Account	36,307,310	42,807,111	48,375,964
Chargeable to Capital Disburse- ments	5,905,588	8,006,755	10,343,575
Total Disburse- ments	42,212,898	50,813,866	58,719,539

STATEMENT OF RECEI

For Year E

RECEIPTS

THE CELL			
MAIN OFFICE Provincial Land Tax		\$ 1,754,617.34 169,603.36	\$ 1,924,220.70
FISH AND WILDLIFE BRANCH Licenses, Royalties and Sundry			8,691,388.62
FOREST PROTECTION BRANCH Forest Protection Section Recovery of Fire Fighting Costs and Miscellaneous Air Service Section — Flying Fees		\$ 84,249.46 44,571.91	128,821.37
LANDS AND SURVEYS BRANCH Lands Section Land Sales (Capital) Summer Resort Roads—Recovery of Construction Costs (Capital) Land Rentals, Leases and Licenses of Occupation Perquisites—Rentals Miscellaneous	al)	\$ 1,113,794.49 66,423.64 384,822.13 176,849.27 14,145.16	
Park Rentals, Leases and Licenses of Occupation Algonquin Rondeau Presqu'ile Long Point Sundry Parks Surveys Section, Recovery of Survey Fees	\$ 13,543.95 13,117.77 2,025.00 703.00 1,391.75	30,781.47 165,450.00	1,952,266.16
PARKS BRANCH Park Concessions — Rentals Permits (All Parks) Vehicle Campsite Licenses — Guide Ski-Tow Fees Miscellaneous	\$ 553,131.00 1,648,213.00	\$ 116,282.82 2,201,344.00 5,500.00 1,552.00 88,933.84	2,413,612.66
TIMBER BRANCH Timber Section Stumpage Charges Management and Fire Protection Charges Agreement Forests Miscellaneous Logging Roads—Recovery Construction Costs (Capital) Reforestation Section	\$14,704,603.36 3,364,472.68 75,059.60 45,651.12	\$18,189,786.76 308,098.03	
Sale of Nursery Stock	Carried Forward	159,353.62	18,657,238.41 \$33,767,547.92

D DISBURSEMENTS ch 31st, 1969

DISBURSEMENTS

DISDUKSEMIEN IS		
MAIN OFFICE		
Minister's Salary—Statutory	\$ 12,000.00	
Salaries	+ 1=/000100	
Travelling Expenses		
Maintenance and Operating	2,266,769.84	
Public Information and Education	279,520.51	
Damages, other Claims, etc.	759.33	
Workmen's Compensation Board	232,760.92	
Annuities and Bonuses to Indians	39,224.00	
Unemployment Insurance	108,626.23	
Advisory Committee to Minister	3,974.31	
Grant to Ontario Forestry Association	12,500.00	
Grant to Canadian Council of Resources Ministers	34,776.00	
Data Processing Services	128,466.58	\$ 3,119,377.72
FISH AND WILDLIFE BRANCH		
Salaries		
Travelling Expenses 42,749.87		
Maintenance and Operating	\$ 932,863.33	
Grants	ψ <i>332</i> ,003.33	
Jack Miner Migratory Bird Foundation \$ 3,000.00		
Ontario Waterfowl Research Foundation		
Ontario Fur Breeder's Association Inc		
Ontario Council of Commercial Fisheries		
Ontario Trappers' Association	23,000.00	
Wolf Bounty	62,000.00	1,017,863.33
vvoii bouilty	02,000.00	1,017,003.33
FOREST PROTECTION BRANCH		
	\$ 263,655.70	
Salaries Travelling Expenses	14,324.36	
Maintenance and Operating	17,494.45	295,474.51
maintenance and operating		255,47 4.51
LANDS AND SURVEYS BRANCH		
Salaries		
Travelling Expenses		
Maintenance and Operating 56,097.24	\$ 888,673.46	
Land Surveys	829,989.69	
Storage Dams—Control and Maintenance	2,001.23	
Grant—Association of Ontario Land Surveyors	200.00	1,720,864.38
PARKS BRANCH		
Salaries	\$ 283,238.99	
Travelling Expenses	22,522.54	
Maintenance and Operating	17,072.17	322,833.70
Carried Forward		\$ 6,476,413.64
Carried Forward		Ψ υ,τιυιτισιό

RECEIPTS (Continued)

	Brought Forward	\$33,/6/,54/.92
FOREST TECHNICAL SCHOOL Tuition Fees		11,857.00
REIMBURSEMENTS OF DISBURSEMENTS GOVERNMENT OF CANADA Ordinary		
Federal-Provincial Resources Development Agreement (See Contra) Federal-Provincial Rural Development Agreement (See Contra)	\$ 99,993.62 665,248.57 30,411.34	
Federal-Provincial Rural Development Agreement (See Contra)	324,868.96	1,120,522.49
GROSS RECEIPTS		\$34,899,927.41
NET RECEIPTS Excess of Disbursements over Receipts		\$33,779,404.92 24,940,134.70

DISBURSEMENTS (Continued)

RESEARCH BRANCH	Brought Forward	\$ 6,476,413.64
Salaries Travelling Expenses Maintenance and Operating	\$ 905,495.05 37,952.26	4.440.064.00
Salaries\$ 1,019,891.85Travelling Expenses62,562.92Maintenance and Operating257,764.32Grants—Municipalities and Conservation Authorities136,068,92	199,813.91 \$ 1,340,219.09	1,143,261.22
Less Federal Contribution	117,687.30	1,457,906.39
BASIC ORGANIZATION—FIELD SERVICES Salaries \$25,050,863.01 Travelling Expenses 937,193.41 Maintenance and Operating 8,601,816.07 Equipment—Other than Forest Fire Suppression 2,655,199.00 Maintenance of Forest Access Roads 965,501.90		
Less Reimbursements of Disbursements—Government of Canada Federal-Provincial Resources Development Agreement	\$38,210,573.39 795,653.53	37,414,919.86
EXTRA FIRE FIGHTING	7 99,033.33	37,414,519.00
Wages, etc., Maintenance and Operating Forest Fire Suppression Equipment	\$ 316,887.40 174,144.86	491,032.26
FOREST TECHNICAL SCHOOL Salaries Travelling Expenses, Maintenance and Operating	\$ 279,639.54 13,940.00	293,579.54
JUNIOR RANGER PROGRAM Wages, Travelling Expenses, Maintenance and Operating		1,098,851.60
SUMMER RESORT ACCESS ROADS (CAPITAL)		
Construction Costs (See Receipts)		190,974.27
Construction Costs (See Receipts)		308,098.03
FOREST ACCESS ROADS (CAPITAL) Construction Costs		1,273,978.04
LAND ACQUISITION AND DEVELOPMENT (CAPITAL)		1,273,370.04
Parks, Recreation Areas, Public Hunting and Fishing Areas, Construction of Buildings and other improvements Less—Reimbursements of Disbursements—Government of Canada—Federal-Pro-	\$ 8,895,393.73	
vincial Rural Development Agreement	324,868.96	8,570,524.77
		\$58,719,539.62

TOTAL EXPENDITURE ALLOCAT

For the Year E

As per Vote	Fish and Wildlife \$	Forest Protection \$	Lands \$	Parks \$
ORDINARY EXPENDITURE Main Office	516,951.24	559,021.46	212,454.15	600,288.52
Fish & Wildlife Branch Forest Protection Branch Lands & Surveys Branch Parks Branch Timber Branch	1,017,863.33	295,474.51	356,358.06	322,833.70
Research Branch Forest Technical School Junior Ranger Program Basic Organization Extra Fire Fighting (Wages and Equipment)	78,092.16 19,191.97 5,653,823.34	23,457.00 180,074.13 9,519,699.48 491,032.26	34,499.27 1,732,458.95	492,525.93 4,370,615.53
	7,285,922.04	11,068,758.84	2,335,770.43	5,786,263.68
DISTRIBUTION OF GENERAL EXPENDITURE AND ADMIN Field Administration (Pro-Rated) Percentage Research (As per Analysis) Surveys (Pro-Rated) Percentage	512,544.72 13.47% 1,181,506.43 16,032.07 1%	754,548.01 19.83% 106,010.39	226,402.45 5.95% 12,573.83 1,571,142.65 98%	788,793.76 20.73%
TOTAL ORDINARY EXPENDITURE	8,996,005.26	11,929,317.24	4,145,889.36	6,575,057.44
CAPITAL DISBURSEMENTS Construction of Access Roads—Summer Resort (see receipts) Construction of Logging Roads (see receipts) Construction of Forest Access Roads Land Acquisition and Development	48,283.77 270,368.00	307,283.50 100,750.00	190,974.27 224,729.73 731,159.53	34,015.21 5,627,981.20
TOTAL CAPITAL DISBURSEMENTS	318,651.77	408,033.50	1,146,863.53	5,661,996.41
TOTAL EXPENDITURE Less—Federal Contributions	9,314,657.03 289,026.79	12,337,350.74	5,292,752.89 403,081.36	12,237,053.85 161,778.70
TOTAL NET EXPENDITURE	9,025,630.24	12,337,350.74	4,889,671.53	12,075,275.1
Percentage of Total* *Deductions	15.37%	21.01%	8.33º/₀	20.56%

MAIN SERVICES RENDERED

ch 31st, 1969

Timber \$	Research \$	Surveys \$	Field Adminis- tration \$	Gross Total \$	Less Federal Contributions \$	Net Total \$
950,856.69	108,348.61	79,659.90	91,797.15	3,119,377.72 1,017,863.33	_	3,119,377.72 1,017,863.33
		1,364,506.32		295,474.51 1,720,864.38 322,833.70	_	295,474.5 1,720,864.3 322,833.7
1,476,288.01	1,143,261.22			1,476,288.01 1,143,261.22	18,381.62	1,457,906.3 1,143,261.2
155,714.59 368,462.61	1,398.42	36,315.79	2,699.27	293,579.54 1,098,851.60	_	293,579.5 1,098,851.6
12,520,093.83	766,875.71	13,899.40	3,710,586.85	38,288,053.09	873,133.23	37,414,919.86
				491,032.26	_	491,032.20
15,471,415.73	2,019,883.96	1,494,381.41	3,805,083.27	49,267,479.36	891,514.85	48,375,964.5
1,265,951.21 33.27% 867,811.05	148,017.74 3.89% *2,167,901.70	108,825.38 2.86%	*3,805,083.27			
16,032.07 1%	2,107,301.70	*1,603,206.79				
17,621,210.06				49,267,479.36	891,514.85	48,375,964.5
				190,974.27	g/14-1500	190,974.27
308,098.03				308,098.03	_	308,098.03
659,665.83 2,165,135.00				1,273,978.04 8,895,393.73	— 324,868.96	1,273,978.0 ⁴ 8,570,524.77
3,132,898.86				10,668,444.07		
					324,868.96	10,343,575.1
20,754,108.92 362,496.96				59,935,923.43	1,216,383.81	
20,391,611.96						58,719,539.62
34.73%						



The duties and responsibilities of Law Branch may be summarized as follows.

- *Policy:* Establishing and reviewing Department policy with respect to legislation, regulations or administration; and integrating Department policies into those of the Government.
- Interpretation of statutes and regulations.
- Advice to branches and field offices on the legal position of the Department in all matters affecting it.
- Preparation and Processing of agreements; briefs, opinions and memoranda on special subjects; leases; legislation; licences; office consolidations of statutes and regulations; pleadings; recommendations to Council; and regulations under the various statutes administered by the Department.
- Services (miscellaneous): Collection of bad accounts; conducting litigation; conveyancing; representing the Department as Counsel in Provincial Land Tax Appeals and other hearings; settlements of claims and disputes; and title searching.
- Liaison with federal officials on matters concerning fisheries; federal canal systems, harbours and lands; and Indian reserves and rights of Indians, particularly regarding hunting and fishing.
- Patents Office: Maintenance of records of Crown land and transactions respecting, and legal dispositions of Crown lands; advising the public on records; compilation of statistics; and preparation and engrossing of documents disposing of Crown land including leases, letters patent and licences of occupation.

LEGISLATION

At the part of the 1968-9 Session of the Legislature that convened on the 19th day of November, 1968, and adjourned on the 27th day of June, 1969, one statute administered by the Department was re-enacted, one statute to be administered by the Department was enacted, and amendments were made to one statute administered by the Department.

THE FISH INSPECTION AMENDMENT ACT, 1968-69

Three amendments were made to The Fish Inspection Act and came into force on May 13, 1969.

Clause *d* of subsection 1 of the Act was re-enacted to define an inspector as a person appointed by the Minister as an inspector under the Act or a person declared to be an inspector, ex officio, under the Act.

New section 1a was added to the Act authorizing the Minister to appoint inspectors and the Lieutenant Governor in Council to declare that inspectors appointed under the Fish Inspection Act (Canada) are ex officio inspectors.

Clause ca was added to subsection 1 of section 13 permitting the making of regulations prescribing the duties of inspectors.

The freshwater fish Marketing act, 1968-69

This new Act provides for the marketing of freshwater fish in a designated part of Ontario and the participation of the fishermen in the designated part in a plan of fish marketing being established under federal legislation, i.e., the Freshwater Fish Marketing Act (Canada), controlling fish marketing in the Prairie Provinces, the territories and the designated area of Ontario.

Section 1 is the definition section.

Section 2 authorizes the Lieutenant Governor in Council to make regulations designating the corporation established under the federal Act, i.e., the Freshwater Fish Marketing Corporation, as the body to control the selling and buying of fish in the part of Ontario designated in the regulations. Where this is done, the Lieutenant Governor in Council may recommend the appointment of a director of the corporation.

Under section 3, where a regulation has been made under section 2, all fish of the species listed in the federal Act lawfully fished by a fisherman and offered by him for sale to the corporation for disposal in intra-provincial trade shall be bought by the corporation.

Section 4 authorizes the appointment of inspectors by the Minister and the declaration by the Lieutenant Governor in Council that federal officers under the Fish Inspection Act (Canada) and the Freshwater Fish Marketing Act (Canada) are ex officio inspectors.

Section 5 sets out the powers of inspectors such as the power to inspect commercial premises and vehicles, open containers and take samples and require production of documents. Persons in charge of premises are required to provide all reasonable assistance and information to inspectors.

Section 6 permits an officer who believes on reasonable grounds that a provision of the Act has been contravened to seize and obtain fish which may not be detained for more than 90 days unless proceedings have been instituted in respect of the contravention. Upon conviction, the fish are forfeited to Her Majesty upon the order of the court.

Section 7 makes it an offence to obstruct an officer or give an officer false or misleading statements.

Section 8 provides that except under a licence or as permitted by the regulations no person other than the corporation or its agent may buy or sell fish listed in the schedule to the federal Act and taken in the designated part of Ontario.

Section 9 authorizes the Minister with the approval of the Lieutenant Governor in Council to enter into agreements with the government of Canada for the sharing of the initial operating and establishment expenses of the corporation and the guarantee of losses of the corporation, the performance of the corporation on behalf of Ontario of functions relating to intra-provincial trade in fish, the undertaking by Ontario of arrangements for the payment for plant and equipment that becomes redundant by reason of the operations of the corporation and such other matters as may be agreed upon.

A penalty of not more than \$5,000.00 is provided by section 10 for contravention of the Act or the regulations.

Section 11 provides that in the prosecution of an offence it is sufficient proof of the offence to establish that it was committed by an employee or agent of the accused, whether or not the employee or agent is identified or has been prosecuted, unless the accused establishes that the offence was committed without his knowledge or consent and that he exercised all due diligence to prevent its commission.

Section 12 provides that summary conviction proceedings shall be instituted within one year.

Section 13 provides for the making of regulations requiring licences to transport fish, governing the issue, form and terms and conditions of licences, exempting species of fish, areas, transactions and persons from the Act, respecting the detention of seized fish and respecting the disposition of forfeited fish.

Section 14 of the Act provides that it comes into force on proclamation and by a proclamation appearing in the Ontario Gazette of August 23, 1969, and issued pursuant to Order in Council Number 2870/69 dated the 24th day of July, 1969, the Act was declared to come into force on August 1, 1969.

THE SURVEYORS ACT, 1968-69

The Surveyors Act, which was last revised in 1931, was revised and up-dated and, with minor exceptions, the recommendations of the Report of the Royal Commission Inquiry into Civil Rights affecting self-governing professions were incorporated into the Act which takes effect on January 1, 1970. The new Act continues the Association of Ontario Land Surveyors, which was established in 1892, its council of management and the board of examiners. The Act sets out the objects of the Association, establishes the site of its head office, and provides for appointment of officers and other staff of the Association.

New principles, in addition to those recommended by the report, include:

- (a) provision of secret votes for officers of the Association and approval of regulations and by-laws;
- (b) appointment rather than election of administrative officers;
- (c) reduction from six years to six months of the period of default for non-payment of dues permitting suspension of membership; and
- (d) the permission of the practice of surveying by partnerships, associations of persons and corporations subject to controls designed to protect the public by ensuring that a qualified surveyor is responsible for survey work performed.

Among the new principles of the Act arising from the recommendations of the Report of the Royal Commission on Civil Rights are:

(a) appointment of lay persons to the council of management including a lawyer of ten years' standing;

- (b) the distinction between regulations and by-laws, the former dealing with matters of general public interest such as discipline, admission, examinations, professional misconduct, form of summons, practice and procedure for hearings, bonding and designation of head office and requiring the approval of the Lieutenant Governor in Council and the latter dealing with internal matters and not requiring such approval;
- (c) a right of a hearing before and a right of appeal from refusal of admission to membership in the Association.
- (d) a broadening of the right of surveyors from other jurisdictions to admission to membership in the Association
- (e) the establishment of full range of sanctions from reprimand to suspension or cancellation of membership for professional misconduct or obtaining admission as a member through misrepresentations;
- (f) the removal of the authority of the Association to levy fines;
- (g) the payment of fines into the public revenues;
- (h) the awarding of costs to members in respect of unwarranted disciplinary action;
- (i) the right of a hearing prior to the council taking disciplinary action;
- (j) the right of representation at a hearing;
- (k) the holding of hearings in private except on the request of the member involved and in the event of a request the council has a discretion of holding the hearing in public;
- (l) the rules of evidence in civil cases apply to hearings;
- (m) summonses may be issued to compel attendances at hearings;
- (n) contempt proceedings shall be administered by the courts rather than by the disciplinary body;
- (o) the person accused has the right to cross-examine witnesses and call evidence;
- (p) decisions are to be reduced to writing, supported by reasons and served on the person whose conduct is under investigation within 30 days;
- (q) the right to continue practice until the right of appear has terminated or an appeal has been finalized, except where the charge was incompetence; and
- (s) a right of appeal to the Court of Appeal on disciplinary decisions.

REGULATIONS

Forty-four regulations made under the authority of Acts administered by the Department of Lands and Forests were made and filed during the fiscal year from April 1st, 1968, to March 31st, 1969.

11	HE (CROW	/N TIMBE	R AC	CT			
Ο.	Reg	. 77/69-	—Amends R	eg. 69	of R.R.O	. 1960		General
TH	HE I	FORES	T FIRES P	RFVF	NTION	ACT		
								Fire Districts
			TRY ACT	-0				in the Districts
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								. Nurseries
Th	HE (GAME	AND FISI	+AC	T, 1961	-62		
Ο.	Reg	. 113/68-	—Amends C	Reg.	46/65			. Fishing Licences
O.	Reg	. 114/68-	—Amends C	. Reg.	229/63 .			. Hunting Licences—Issuance
O.	Reg	. 232/68-	—Amends O	. Reg.	184/64 .			. Fire-Arms
O.	Reg	. 241/68-	—Amends C). Reg.	294/67 .			. Open Seasons—Rabbit and Squirrel
0.	Reg	. 251/68-	—Amends C	Reg.	229/63 .			. Hunting Licences—Issuance
O.	Keg	. 2///68-	-Revokes O	. Regs	.285/63, 2	86/63,	251/64,	
0	D	270/60	281/64, 33	5/66, 3	342/66, 27	3/67 ai	nd 274/67	. Hunting on Designated Crown Land and in Provincial Parks
O.	Keg.	. 2/0/60-	—Revokes O	. Kegs	i. 139/65,	180/65	, 266/65,	
0	Pog	270/69	2/2/66 and	349/	07			. Open Seasons—Deer, Moose and Black Bear
0.	Reg.	27 9700- 280/68	Povokos O	Pog.	275/67			Open Seasons—Game Birds
0.	Reg.	200/00-	-Revokes O	. Reg.	323/0/ .			. Designation of Class of Licence
0.	Reg.	. 297760- . 302768	-Amends O	Pog	293/0/ .			. Open Seasons—Fur-Bearing Animals . Hunting Licences—Issuance
0.	Reg.	317/68_	—Amends O —Amends O	Rege	223/03 .	378/64	273/66	. Hunting Licences—Issuance
٠.	NCS.	317700	77/67 314	67 and	d 251/68	320/04	2/3/00,	. Hunting Licences—Issuance
Ο.	Reg.	319/68-	-Amends O	Reg	278/68			Open Seasons—Deer, Moose and Black Bear
O. 1	Reg.	338/68-	—Amends O	. Reg	277/68			Hunting on Designated Crown Land and in Provincial Parks
Ο.	Reg.	339/68-	–Revokes O	. Reg.	211/65			Hunting Licences—Issuance
Ο.	Reg.	357/68-	Amends O	. Reg.	272/67			Training Electrices—Issuance
O. I	Reg.	363/68-	Amondo	5				. Open Seasons—Game Rinds
O.	Reg.		-Amenas O	. Reg.	278/68			. Open Seasons—Game Birds . Open Seasons—Deer, Moose and Black Bear
0		. 364/68	—Amends O	. Reg.	229/63			Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance
O.	Reg.	364/68- 384/68-	–Amends O –Amends O	. Reg. . Reg.	229/63 184/64			 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms
O. 1	Reg. Reg.	364/68- 384/68- 390/68-	—Amends O —Amends O —Amends O	. Reg. . Reg. . Reg.	229/63 184/64 278/68			 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms Open Seasons—Deer, Moose and Black Bear
O. I	Reg. Reg. Reg.	364/68- 384/68- 390/68- 406/68-	—Amends O —Amends O —Amends O —Amends O	. Reg. . Reg. . Reg. . Reg.	229/63			 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms Open Seasons—Deer, Moose and Black Bear Fishing Licences
O. I O. I	Reg. Reg. Reg. Reg.	364/68- 384/68- 390/68- 406/68- 427/68-	—Amends O —Amends O —Amends O —Amends O —Amends O	. Reg. . Reg. . Reg. . Reg. . Reg.	229/63			 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms Open Seasons—Deer, Moose and Black Bear Fishing Licences Fishing Licences
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O. I O. I O. I	Reg. Reg. Reg. Reg. Reg.	364/68- 384/68- 390/68- 406/68- 427/68- 428/68-	—Amends O —Amends O —Amends O —Amends O —Amends O —Amends O —Revokes O	. Reg. . Reg. . Reg. . Reg. . Reg. . Reg.	229/63 184/64 278/68 46/65 46/65 272/67 278/68, 3	319/68,	363/68 and	 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms Open Seasons—Deer, Moose and Black Bear Fishing Licences Fishing Licences Open Seasons—Game Birds
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O. 1 O. 1 O. 1 O. 1 O. 1 O. 1 O. 1	Reg. Reg. Reg. Reg. Reg. Reg. Reg. Reg.	364/68- 384/68- 390/68- 406/68- 427/68- 428/68- 25/69- 43/69- PROVII 115/68- 202/68- 320/68- 362/68-	—Amends O —Amends O —Amends O —Amends O —Amends O —Amends O —Revokes O 390/68 —Amends O NCIAL PA —Amends Re —Amends Re —Amends Re —Amends Re —Amends Re —Amends Re	. Reg Reg Reg Reg Reg Reg Regs Regs Reg Reg Reg Reg Reg Reg Reg 499 . 498 . 498 . 498 . 498 . 498 . 498 . 498 . 498 . 498	229/63 184/64 278/68 46/65 272/67 278/68, 3 280/68 ACT of R.R.O. of R.R.O. of R.R.O.	. 1960 1960 1960 1960 1960 1960 1960	363/68 and	 Open Seasons—Deer, Moose and Black Bear Hunting Licences—Issuance Fire-Arms Open Seasons—Deer, Moose and Black Bear Fishing Licences Fishing Licences Open Seasons—Game Birds Open Seasons—Deer, Moose and Black Bear Designation of Class of Licence General General

O. Reg. 86/69—Amends Reg. 498 of R.R.O. 1960 Designation of Parks

THE PUBLIC LANDS ACT O. Reg. 125/68—New O. Reg. 164/68—New O. Reg. 194/68—Revokes O. Reg. 125/68 O. Reg. 53/69—New O. Reg. 87/69—Amends Reg. 524 of R.R.O. 1960	Restricted Areas—District of Muskoka—Township of Baxter Restricted Areas—District of Sudbury—Townships of Cochrane, Chapleau, Gallagher, Panet, Tp. 28 and Tp. 29
THE RAILWAY FIRE CHARGE ACT O. Reg. 411/68—Amends Reg. 532 of R.R.O. 1960	Charges for Fire Protection
THE WILDERNESS AREAS ACT O. Reg. 361/68—Amends Reg. 567 of R.R.O. 1960	
O. Reg. 250/68—Amends Reg. 569 of R.R.O. 1960	General

Giant Canada geese in flight.



ORD	ERS-IN	N-COL	INCIL		THE INT	TERPRETA	TION ACT		3458/68
Recommer 'ear 1968-	nded by the I	Minister of La	ands and For	ests in the					3490/68 4191/68
THE CRO	OWN TIM	BER ACT			MISCEL	LANEOUS			
413/68 430/68 601/68	2754/68 2798/68 2843/68	4057/68 4058/68 4090/68	5/69 6/69 7/69	298/69 299/69 309/69	TUENAL	INIICIDAL	1803/68 2076/68	3765/68 4066/68	5136/68 5142/68
763/68 815/68 831/68	2909/68 2943/68 2951/68	4123/68 4193/68 4346/68	15/69 16/69 22/69	310/69 402/69 414/69	THE MC	INICIPAL	2345/68 2581/68	2710/68 3460/68	3777/68 1091/69
845/68 872/68 930/68	2964/68 2981/68 3190/68	4347/68 4369/68 4420/68	23/69 74/69 75/69	417/69 529/69 532/69	THE ON BOARD		EOGRAPH	IC NAME:	608/69
1147/68 1167/68 1284/68	3192/68 3240/68 3319/68	4469/68 4470/68 4475/68	91/69 95/69 96/69	613/69 692/69 722/69			PARKS AC 2428/68	3625/68	4195/68
	3359/68 3412/68 3442/68 3644/68 3645/68 3655/68 3655/68 3656/68 3699/68 3896/68 3897/68 3928/68 CUTIVE C		4421/68	795/69 805/69 806/69 810/69 826/69 827/69 912/69 913/69 916/69 1097/69 1128/69 1207/69	1479/68 1481/68 1482/68 1483/68 1490/68 1572/68 1573/68 1643/68 1651/68 1725/68 1813/68 1857/68 1936/68 2041/68 2075/68	BLIC LANI 2375/68 2434/68 2437/68 2450/68 2473/68 2502/68 2554/68 2578/68 2777/68 2992/68 2998/68 3030/68 3186/68 3191/68	DS ACT 3254/68 3313/68 3366/68 3371/68 3372/68 3542/68 3549/68 3715/68 3745/68 3766/68 3895/68 3903/68 3911/68 3912/68 3955/68 3955/68	3957/68 3959/68 3998/68 4067/68 4068/68 4073/68 4091/68 4093/68 4235/68 4330/68 4336/68 4455/68 4559/68 4814/68 4837/68 4955/68	14958/68 5016/68 5134/68 5176/68 93/69 94/69 113/69 191/69 204/69 566/69 604/69 770/69 813/69 828/69 968/69 1206/69
THE FOR	REST TREE	PEST CO		СТ	THE SUF	RVEYS AC	T		4610/68
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Trapper with catch of wolves, Lindsay Forest District.

FEDERAL-PROVINCIAL CO-OPERATIVE AGREEMENTS

PREVENTION AND CONTROL OF FIRES ON INDIAN RESERVES

By an agreement dated the 24th day of June, 1968 between the Government of the Province of Ontario as represented by the Honourable Rene Brunelle, Minister of Lands and Forests, and the Government of Canada as represented by the Honourable Arthur Laing, Minister of Indian Affairs and Northern Development, the agreement respecting fire protection on Indian Reserves dated the 31st day of July, 1961, was remade. Under the new agreement, Ontario will continue to provide the same prevention and detection services to Indian reserves as are provided to adjacent public lands and Canada shall pay to Ontario on or before May 1st in each year 4¢ for each protected acre. This agreement is subject to review at five-year intervals.

RECONSTRUCTION OF CRAB LAKE DAM

By an agreement dated the 15th day of October, 1968, between Her Majesty the Queen in right of Canada represented by the Minister of Transport and acting under the

authority of Order in Council PC 1969-138, and Her Majes the Queen in right of Ontario represented by the Ministro of Lands and Forests acting under the authority of Order Council OC 4421/68, Canada was given the right to reconstruct or rebuild the dam on Crab Lake, sometimes known as Nunikani Lake, in Sherborne Township in the Provision County of Haliburton. The agreement provides for an increase in the elevation of the control level from nine fees ix inches, to eleven feet, six inches, above the sill of the old dam, which level is equivalent to ten feet above the soft the new dam. Canada retained the right to regulate the dam and Ontario agreed to indemnify Canada against ar claims arising from the raising of the water level on Cralake to not more than ten feet above the top of the sill of the new dam.

The dam on Crab Lake was one of the dams turned ov to Canada by the Order in Council of July 22, 1905, for the purpose of establishing reservoirs for the Trent Canal System

STATEMENT OF PATENTS

Statement of Patents, etc., Issued During the Year ending March 31, 1969.

March 31, 1969.	
PATENTS Agriculture City-Town Free Grant Miscellaneous Summer Resort Release of Pine	19 59 2 144 117
LEASES Algonquin Park Crown Rondeau Park Water Lot	27 21 29 4
LICENCES OF OCCUPATION -	61
CANCELLATIONS	
LEASES Algonquin Park Crown Rondeau Park Water Lot LICENCES OF OCCUPATION	28 1 44 1
LICENTED OF OCCUPATION	62



Operations Branch is divided into six sections with duties and responsibilities as follows.

- Office Management: Inventory of major equipment; licensing of boats; production of circulars and bulletins; Crown land records and microfilming; Branch budget estimates and allotments; staff records and processing; and uniform records and issues.
- Purchasing: Purchasing of equipment, supplies and services; filling requisitions; leases and rentals; and arrangements for travel and conferences.
- Central Supply Warehouse: Receipt, security and distribution of equipment, supplies, uniforms and printed material; and promotion of foreign state visits.
- Conservation Information: Publications; weekly newsletter and press releases; material for outside agencies; display and classified advertisements; photo, slide and cut services; reference library and clipping service; and supply of information to public.
- Conservation Education: Display material for Department exhibits; production and purchase of motion films; film supply service; program material for radio and television; and lecture service.
- Accident Control: Administration of The Loggers' Safety Act; Hunter Safety Program; safety program in Provincial Parks; staff safety and first aid programs; and Workmen's Compensation.

OFFICE MANAGEMENT SECTION

During the fiscal year, the preparation, revision and allotment of operating funds were continued. The inventory of the Department's major equipment included trucks, cars, boats, canoes, power plants and shop machines. Staff records and recommendations were processed.

Records were kept of the 1,380 on staff, including Parks seasonal staff, who wear the Department uniform. New requirements were included in the estimates for the next fiscal year.

The Records Office houses records pertinent to all Crown lands of the Province. Here, duties included the assembly, indexing and classification of all incoming correspondence, and the compilation and distribution of new files.

To license Department boats, communication was maintained with the federal Department of Transport. Some marine units of the Department require only a licence number, while others need a registration certificate.

Various special assignments were carried out.

PURCHASING SECTION

Due to continued expansion and the resultant need of equipment, procurement in this fiscal period was active and widespread. Over 11,000 requisitions were received and these were the basis for the issuance of 7,864 direct purchase orders, 2,520 Queen's Printer stationery orders, 685 printing orders and 261 Public Works requisitions. Back of this basic need and demand were the many-faceted details of investigation and procurement.

Supervision of leases for office and other space requirements, as well as telephone service oversight, was also maintained in conjunction with the Department of Public Works.

CENTRAL SUPPLY WAREHOUSE SECTION

During the fiscal year, the Section received a total of 368 tons of supplies and equipment and shipped a total of 260 tons. Shipments were made by express, freight, transport and mail, and by internal supply to Department offices.

The Section participated actively on the committee re sponsible for the reception of state visitors and governmen experts.

Thirty types of licences were distributed to district office and more than 3,000 licence issuers on 15,233 invoices. The 2,100,000 licences included hunting, angling, bait fish, rol net, dip net, frog, guide, trapping, trap-line, and dog licences.

The distribution of Provincial Park permits included 175,700 annual vehicle permits, 378,000 daily permits and 298,000 campsite permits. 295,500 fur seals were distributed

Department uniforms were stocked and delivered to per sonnel on requisition.

Campers are advised to feel the ashes with the bare hand to make sure their campfire is dead out before they leave it



CONSERVATION Information Section

The Section worked through many media during the past fiscal year to disseminate information on the protection and management of the renewable, natural resources under the Department's administration.

RELEASES

A newsletter of several pages circulated Department news and regulations every week in a form easily adapted by outside agencies. The mailing list of 4,042 included all newspapers, broadcasting stations and outdoor writers in Ontario, as well as magazines, trade papers, forest industries, conservation groups, recreational clubs, and a number of writers and commentators outside the province.

The French translation of the newsletter had a weekly circulation of 185.

News of more than normal urgency was supplied directly to important news outlets.

Conservation Copy provided additional material for writers and publications in season, while Conservation Spots supplied public service announcements to broadcasters.

Special appeals were prepared for news media to enlist public support of Department programs, principally in forest fire prevention and hunter safety.

Other editorial services increased the concentration of conservation messages. Articles and background material were prepared for outside agencies on request. Speech material was prepared for Department personnel invited to address public meetings or speak on broadcast programs.

SERVICES

During the year, 36,200 answers were returned by mail to persons requesting information on Crown land, outdoor recreation, nature study, forest tree planting, and forest industry. In addition, numerous requests were answered by telephone.

The Photograph Library loaned 9,500 black-and-white prints and 1,000 colour transparencies to newspapers and magazines. Sets of slides or prints were supplied on request to illustrate lectures. The library now has 40,000 negatives and 5,500 colour transparencies.

Section photographers took photographs on assignment and supplied prints from the darkroom.

The Reference Library circulated periodicals and press clippings.

To call for tenders on timber cutting, etc., 171 advertisements were placed in 34 newspapers and three class magazines during the year.

NEW PERIODICAL

The first issue of "Your Forests" was released in July, 1968, with plans for further publication two or three times per year in support of the forestry program administered through Reforestation Section under The Woodlands Improvement Act.

NEW PUBLICATIONS

Scientific papers, management reports, training manuals, consolidations of Acts, and Provincial Park leaflets are not included in the following list of publications released during the past fiscal year.

FISH AND WILDLIFE

Fishes of Ontario (\$2.50) (revised)

Sport Fishes of Ontario (\$1.00) (wall chart, revised)

The Deer Hunt in Ontario

The Moose Hunt in Ontario

The Spring Bear Hunt in Ontario

The Ontario Ruffed Grouse Report, 1964-7

The Game and Fish Act and the Ontario Fishery Regulations

Summary of the Ontario Fishery Regulations

Summary of the Ontario Hunting Regulations

Provisional Summary of Big Game Hunting Seasons in Ontario

Summary of the Ontario Regulations Which Apply to Trapping and Fur Dealing

OUTDOOR RECREATION

Hunter's Handbook, Part I

Instructors' Guide in Hunter Training

Data on Hunting Accidents

The Ten Commandments of Hunter Safety (revised)

Why Hunter Safety Training? (revised)

The Ontario Outdoorsman's Manual (\$0.25) (revised)

PROVINCIAL PARKS

Provincial Parks of Ontario (revised)

Check-List of the Mammals of Algonquin Provincial Park (revised)

Check-List of the Birds of Rondeau Provincial Park (revised)
LAND AND WATER

Crown Surveys in Ontario (revised)

FORESTS

The Farm Woodlot (\$0.50)

Growing Christmas Trees in Ontario

The Forest Trees of Ontario (\$0.50) (revised)

Care and Planting of Forest Trees (revised)

St. Williams Forest Station (revised)

FOREST INDUSTRY

Secondary Wood-Using Industries in Ontario

RESEARCH

The Harkness Laboratory of Fisheries Research

Manual of Common Parasites, Diseases and Anomalies of Wildlife in Ontario (\$4.00) (revised)

ADMINISTRATION

Annual Report of the Minister of Lands and Forests

Statistics, 1969

Publications, 1968-9

Ontario Junior Forest Ranger Program (revised)

CONSERVATION EDUCATION SECTION

The Section conducts an educational program which consists of the type of appeals calculated to attract public interest and explain in easily understandable terms the need for the wise use of renewable, natural resources.

VISUAL EDUCATION

The Section's film library contains 257 titles with two or more prints of many of the titles. All films are available for loan to field offices upon request. During the year, approximately 1,350 films were shipped to field offices in answer to requests received. Each District has its own projection equipment and each has access to regional film libraries as well as the head office film library.

The Section also loaned 16mm motion picture projectors 35mm slide projectors, screens and films to Provincial Park offering an interpretative program to the public during the summer months.

During the year, the following films were added to head office and field film libraries:

Aircraft in Forest Fire Control

Flames in the Forest

Foresters

Forest Regions of Canada

The House the Wasp Built

A Place to Stand

Right to Burn

Seeds to Trees

That They May Live

Training Fire Pump Crews

Trigger Happy Harry

Wild Wings

Wonders in a Country Stream

Several thousand feet of motion picture film were avail able for use by television stations in Ontario. In addition, set of ten one-minute television shorts was prepared for distribution to Ontario television stations covering various subjects related to Department activities such as forest fir prevention, nursery operations, wildfowl, timber scaling Provincial Parks and litter prevention.

Two new films were started, one on General Recreation in Northern Ontario and one on Logging Safety.

RADIO AND TELEVISION

Radio and television stations throughout the Province hav been most generous in their donations of free time to th Department, and District offices regularly take advantage of these opportunities to appeal to the public.

LECTURE TOURS

The Department kept in touch with the public through fisl and game associations, schools, church groups, service club and youth organizations. Illustrated lectures were given of all aspects of the Department's work.

A total of 3,150 lectures was given to audiences totalling 248,214 during the past fiscal year. The totals included 85 lectures to 89,970 school children and 987 lectures given by Ontario Forestry Association personnel to 21,175 persons

EXHIBITS

Visual conservation appeals are featured in the Department's exhibits at many of the shows and fairs in Ontario. The major exhibits handled through this Section were as follows.

Canadian National Exhibition, Toronto. Our exhibit space n the Ontario Government Building consisted of a fish aguarium 100 feet in length, divided into 20 separate tanks; above these tanks are safety cartoon panels and 10 panels of the woods of Ontario. Other exhibits featured a portable building consisting of 22 cages for animals and birds. Also eatured were Indians demonstrating their skill with leather and beadwork; snakes and turtles; hunter safety training; Crown land cottage sites; wild fur; and an animated Tower ack giving warnings of forest fire dangers. A map of Ontario nade from the provincial hardwoods was displayed at the information desk. The Conservation Poster Contest for school children from six to fourteen years of age was popuar again this year. A Grand Prize of \$100.00 was presented for the best poster. First, second and third prizes, in each of three age groups, in the amounts of \$50.00, \$25.00 and

\$15.00, were awarded. Thirty "Honourable Mentions", ten in each age group, were presented with books.

Canadian National Sportsmen's Show, Toronto. Our exhibit featured 16 cages of Ontario's wildlife and eight tanks of fish, and displays related to Provincial Parks, lands and surveys, forest protection, hunter safety (good hunterlandowner relations), anti-litter, and a photographic representation of careers in the Department.

Central Canada Exhibition, Ottawa. Our exhibit here featured Ontario's fish and wildlife, Provincial Parks, illegal and defective guns, and furs of Ontario.

Royal Agricultural Winter Fair, Toronto. Our exhibit featured the story of reforestation from the initial stages, cones, seeds and seedlings, through to shipping to the woodlot owner; the proper planting methods were demonstrated. A talk was given by foresters to organized school classes visiting with their teachers. Native wild animals were also featured.

Aid to Districts. Full co-operation was given to District offices participating in sportsmen's shows and agricultural

Staff member shows children how to recognize poison ivy.



fairs such as the Western Fair at London, the International Plowing Match at Guelph, the Timmins Sportsmen's Show, the Canadian Lakehead Exhibition at Port Arthur, and the Chatham Sportsmen's Show.

EXHIBIT AWARD

Our exhibit at the Royal Agricultural Winter Fair won the 1968 International Award for "Exhibit Excellence", awarded by the American Association for Conservation Information.

ACCIDENT CONTROL SECTION

With the continuing development of our safety program aimed at a reduction in loss of life, personal injury and property damage, the work-load is increasing, and one additional accident control officer was added to field staff, bringing the total to eleven, including three regional supervisors.

THE LOGGERS' SAFETY ACT

Enforcement of this Act is mainly a case of safety education. The large operators have excellent safety programs, generally speaking, but the smaller operators do not and cannot afford such programs, and it is in this area that our assistance is most needed. We do, however, participate in all logging safety programs wherever possible.

During the year, our officers made over 3,500 inspections under the Act, giving advice on safety matters and issuing warnings and stop-work orders for serious infractions of the Act and Regulations.

While the number of accidents showed an increase over the previous year, this was partially due to a change in reporting procedures. There were 14 fatal accidents, a decrease of five from the report of last year.

HUNTER SAFETY TRAINING

To improve the quality of this program, it was decided to upgrade the instruction. A new examination for instructors was developed, and all existing instructors who wished to continue in the program were required to be retested. Successful applicants totalled 904. In addition to this, each instructor is required to conduct at least one class each year to remain on the active list, and, in any case, must be reexamined every three years.

At the same time, a new Instructors' Guide in Hunter Training was developed, and a hunter's handbook for new hunters was produced.

During the year, 13,030 students were instructed, and it was the consensus that the students applying for examination for hunting licences were considerably more knowledgeable than in previous years.

SAFETY IN PROVINCIAL PARKS

Field officers of the Accident Control Section make frequent inspections in Provincial Parks, reporting hazardous or unsafe conditions to the proper authority for immediate remedial action. (The Section is not responsible for the beach patrol maintained in some parks.)

During the months of July, August and September, the Department sponsored a water-safety demonstration program presented by the Ontario Safety League in about 35 Provincial Parks. While it is estimated that persons present at these demonstrations totalled approximately 175,000 many more thousands received benefit through the services of television stations which covered the demonstrations.

WORKMEN'S COMPENSATION

The Workmen's Compensation Act was amended on August 1, 1968, increasing costs to the employer. Department costs for 1968-9 reached a high of \$248,380.59, an increase of \$31,595.35 over the previous fiscal year. The total included \$143,437.04 for compensation claims costs; \$87,439.29 for pension claims costs, an increase on the year of \$30,455.82, 96 per cent of the overall increase; and \$17,504.26 for administrative costs.

Compensable claims numbered 759, an increase of 43 over the previous year; the percentage of staff involved in accidents increased by 0.8. The average cost per claim was \$187, a decrease of \$13 on the year.

Fire control projects cost \$5,005.94 including \$1,309.15 for fire fighting costs. Junior Ranger costs increased slightly

Seven new pensions for permanent disability were established.

Three deaths occurred during the year. A pension was established for the dependants of one employee killed in a plane crash.

The Injury Frequency Rate in 1968-9 was 17.4, an increase from 15.7 in 1967-8 and from 13.8 in 1966-7. The rate refers to compensable injuries that require a lay-off from work beyond the day of accident.

The Lands and Forests Safety Trophy was won by Geraldton Forest District with a 1968-9 record of one compensable lost-time injury in 45,679 man-days worked for an Injury Frequency Rate of 2.2.



Research Branch is divided into an Administration group and three sections, each with its subordinate units, with the following duties and responsibilities.

ADMINISTRATION

Supervises research programs, operates and maintains Southern Research Station, and provides the following technical services.

Biomathematics and Statistics: Sampling and experimental designs, computer programs, data analyses and interpretations, and consulting services.

Drafting: Maps, charts, diagrams, and designs for reports and field use.

Mechanical: Design, development and fabrication of unique equipment; and engineering services.

Library: Library service including abstracting service and inter-library loan by telex.

Photography: Photographs and processes in black-and-white and colour, macro and micro photography, and still and motion pictures.

FISHERIES SECTION

GREAT LAKES UNITS: Fisheries Research Stations at Glenora (Lake Ontario), Wheatley (Lake Erie), South Baymouth (Lake Huron), and Sault Ste. Marie (Lake Superior).

GAME FISH UNITS: Lake Trout, Brook Trout, Smallmouth Bass, Kokanee, and Walleye.

DISCIPLINE UNITS: Selective Breeding, Parasitology, Limnology, Productivity, and Technical Studies.

FORESTRY SECTION

Maple Units: Developmental, Forest Economics, Ecology, Tree Nutrition, Mensuration, Wood Science, Nursery and Plantation, Seed Research, Site, and Tree Breeding.

Field Units: Southwestern (Maple), Mid-Western (Port Arthur), South-Central (Dorset), Central (Sault Ste. Marie), and Southeastern (Tweed).

WILDLIFE SECTION

The Wildlife Research Station is located in Algonquin Park. The following units are located at Maple.

Big Game

Fur bearers

Predators

Upland Game and Waterfowl Wildlife Diseases and Parasites

FISHERIES SECTION

GREAT LAKES UNITS

LAKE ONTARIO UNIT

The whitefish fishery continued to show improvement following experimental closure for spawning fish on lakeshore grounds. There are no indications of a return of the Bay of Quinte whitefish spawning runs.

The first of three scheduled plantings of yearling splake amounting to 24,000 was completed. Commercial fishermen will be paid for the return of any of these taken in their nets. Spawning is not anticipated before 1970.

A survey by the vessel Namaycush included investigations of near-bottom dissolved oxygen conditions in mid-July and mid-August. No areas of oxygen depletion were noted.

An important analysis was made on the relationship between numbers of smelt netted and size of net mesh.

Environmental monitoring at several locations indicate significant increases in phosphates and nitrates in the past four years.

A program of tagging and releasing American eels has been in progress since 1958. Physical characteristics have been placed on computer cards to produce a morphological index of maturity. The commercial catch continues to decline.

Results in attempts to introduce the kokanee, a pelagic, plankton feeder in its native waters, into Lake Ontario have so far been negative. Studies of the downstream behavior were made in the laboratory and in Shelter Valley Creek. An additional 228,000 fry were planted in Shelter Valley Creek.

LAKE ERIE UNIT

Fish stock were monitored by sampling commercial catches. This provides a substantial body of data at minimum expense.

A year-to-year index for relative abundance of all fish species was established by experimental fishing. This is useful in predicting, at least qualitatively, the success of commercial fishing for these species one or two years hence.

Studies continue on the timing of smelt runs in relation to weather, and vital statistics of the spawning fish have been thoroughly documented. Incidence of the parasite Glugea remains high, but there is no evidence yet of mortality.

Walleye spawning areas were surveyed and described. A study of the productive potential of Thames River Walleye was initiated and will continue. A study on movements of this species was completed and reported.

LAKE HURON UNIT

Experimental pound-net samplings show a continued decline in abundance of alewives, an increase in ciscoes, a stable pattern in whitefish and a decline in both yellow perch and suckers.

Gill net surveys in southern Lake Huron indicate a situation common to the whole lake, that undesirable species dominate the catch.

Smelt index stations indicate a decline in this species.

Studies of young whitefish would seem to indicate that year-class strength is determined by survival at the egg stage rather than elsewhere in its life history.

Commercial catches of whitefish are sampled to describe the dynamics of growth, mortality and exploitation of the population and to segregate total mortality into components attributable to fishing and non-fishing causes.

Branding splake.



The monitoring of commercial catches will be important in evaluating the kokanee introduction, splake introductions, and the changes in the fishing resulting from lamprey control measures.

Captures of planted hybrid splake from introductions of 1966-8 indicate that 98 per cent of the 2,000 caught were within ten miles of the planting site. Stomach contents showed that fish were feeding on cottids, smelt and alewives. Lamprey scars were numerous from August to November. It was found that splake were spawning in former lake trout spawning beds. The mean length of splake taken was 33.8 cm.

A shortage of kokanee eggs necessitated a reduction in planting to 20,000. Detailed observations on sex ratios, numbers of fish and temperature were made on several runs. The return of mature kokanee was down from the previous year. Proof of natural reproduction was established.

A part of this study included a survey of spawning beds, recording gravel size, water and gravel depths, type of substrata, and weed cover area. This data will be useful in determining the suitability of other gravel beds as spawning sites.

Data collected supported earlier evidence that growth of kokanee in South Bay is slower than in Lake Huron proper. An analysis of fish stomachs was made to see if feeding was a factor.

Data collected from creel census studies predict a continued decline in the smallmouth bass population. There is a positive relationship between warm summers and strong year classes which explains the decline.

LAKE SUPERIOR UNIT

This is a new unit, established in 1967 when Ontario accepted responsibility for all fisheries research in Lake Superior. There was extensive co-operation with the Fisheries Research Board in the lake trout rehabilitation assessment program and a lake trout spawning survey.

GAME FISH UNITS

LAKE TROUT UNIT

Creel census information shows a decline in size of fish taken, but more fish taken per unit effort of fishing in Lake Opeongo.

Present closing practices do not seem to have resulted in improved angling success as shown by creel census studies on other lakes.

Studies on the role of food and feeding on the history of the lake trout have indicated that changes in available food have resulted in an accelerated growth rate.

BROOK TROUT UNIT

This unit is determining population size and structure over a period of years, monitoring fishing pressure and resultant yield, and assessing reproductive capacity and factors which determine this capacity.

Preliminary analysis suggests that lack of suitable spawning areas limits production.

Other studies include the role of hatchery fish in management of brook trout lakes. Planting methods, use of fish toxicants, bottom fauna, competition from suckers and artificial spawning beds are also being investigated.

SMALLMOUTH BASS UNIT

Activities of this unit involve the determination by direct observation of the daily activity patterns and their seasonal changes within various size and age groups. Coincidental with this is the capture and tagging to determine population estimates.

WALLEYE UNIT

This program is also largely based upon direct observation using SCUBA gear and is aimed at assessing environmental conditions preferred by walleye. It has been determined that light is more important in influencing location than is temperature. Shelter, therefore, is important under daylight conditions. Water-level fluctuations also affect distribution.

New and more reliable age determination techniques were assessed.

A walleye bibliography of 1,600 references has been accumulated and will be published.

DISCIPLINES UNITS

LIMNOLOGY UNIT

This unit is standardizing limnological data collections among fisheries research units and other agencies.

A small-pond study is aimed at comparing the physical, chemical and biological conditions in a variety of ponds and small lakes in southern Ontario to learn their productivity, actual and potential.

Studies conducted into gill-net selectivity show that form of the selectivity curve varies with species of fish.

Changes in the physical and chemical environment of the Laurentian Great Lakes were reported.

SELECTIVE BREEDING UNIT

Studies of the life history and ecology of successive generations of splake in natural conditions to determine what to expect of the performance of highly selected splake planting, when made, are being carried out.

PARASITOLOGY UNIT

Because of the increasing number of specimens being submitted for examination, material is being prepared for a manual of the common fish parasites found in Ontario.

PRODUCTIVITY UNIT

The broad objective is the development of a practical index for classification of Ontario lakes in terms of their potential for producing pounds of fish. Total dissolved solids and mean depth have been established as two main indicators.

TECHNICAL STUDIES UNIT

This unit provides specialized services in identification and counting of phyto and zoo plankton organisms and of the identification and measurement of bottom fauna and fish food organisms.

FORESTRY SECTION

MAPLE UNITS

NURSERY AND PLANTATION

A report is in preparation on the culling and grading of nursery stock based on 10 years of observations on white spruce planting stock.

Studies are continuing on "Comparison of Seedlings and Transplants", "Over Winter Storage of Nursery Stock", "Nutrient Coorelations", "Fertilizing at Planting", "Planting Check", "Root Coating" and "Seedbed Densities".

Frost-hardiness studies to date indicate that, when white spruce and red pine are compared at similar stages of development, the white spruce is somewhat hardier in the summer and considerably hardier in the winter. Most conifers begin to increase their frost hardiness in early September, but the rate varies with species.

Preliminary examination of drought-study data shows that red pine is more susceptible to drought than white spruce. Drought rings are not similar to frost rings.

TREE BREEDING

Two groups of poplar projects are being carried out—the Aspen group and the Cottonwood group. The primary objectives are to produce strains with improved silvicultural characteristics, suitable for future needs of timber production under varying conditions in Ontario and to extend the northern range of cottonwood.

Many exotic and native poplars have been acquired for a gene pool for development of breeding aboreta and for testing.

Several experiments on vegetative propagation have been established to study the techniques. Also being studied if the ability of selected native aspens and their hybrids to sucker and root, and to develop superior clones which propagate easily by vegetative means.

A spruce program to develop hybrids of superior growth form and wood quality, and to develop multilineal synthetic varieties with superior silvicultural characteristics, continues

Several experiments were established to determine ithere is a practical way to propagate spruce vegetatively Best results to date were from hard, untrimmed cutting from lateral branches.

Emphasis on the white pine program has shifted from resistance to blister rust and weevil to improvement of growth form, stem form, branchiness and shade tolerance. Experiments on vegetative propagation were started to obtain means of more accurate clonal testing and to prevent the loss of genetic gain achieved in the selection of superior and resistant trees.

WOOD SCIENCE

Studies continue to define the specific physical and chemical wood characteristics which contribute to the superior quality of the manufactured product and to relate these characteristics to heritable and environmental factors.

A method for the assessment of the average specific gravity and compression wood percent, of all the wood in the bole of standing black spruce trees, is under development. Preliminary statistical analysis indicates that a linear relationship for trees can be established from core samples.

It has been found that compression wood percent is a better indicator of pulp yield than is specific gravity.

SITE

Emphasis is upon research that will provide basic quantitative data in areas of nutrient availability, forest humus, moisture availability, water balance and root-soil relationships.

Two studies on site classification are being finalized. They deal with the development of concepts for the classification of ecosystems and the demonstration of broad relationships between physical characteristics of the land and the development of forests.

MENSURATION

The measurement and treatment of permanent sample plots, established to furnish data on the yield of plantations in southern Ontario, was continued.

Studies are continuing to make quantitative determinations of the potential of various physiographic sites to produce hardwoods. This is accomplished by measuring the yield of fully stocked upland hardwood stands and estimating the growth throughout the age of the stand by stemanalysis techniques.

FOREST ECONOMICS

The purpose of this unit is to advise on the economic aspects in the planning of forest research projects and to participate in the research requiring economic analysis. A comprehensive paper on the various aspects of Soviet forestry was prepared, and a library research conducted on the theory of the sustained-yield principle.

TREE NUTRITION

A report on fertilization of jack pine was published, showing results after six years. Growth and cone production were increased.

One-year growth of poplar hybrids.



Two years after fertilizing red pine on a sand plain, results showed that growth of larger trees had increased, apparently at the expense of the smaller trees.

A fertilization program of black spruce in the Clay Belt is under study. Urea was applied from aircraft at the rate of 111 lbs. and 222 lbs. per acre.

Various methods of analysis for determination of N, P, K, Ca and Mg have been tested for the purpose of selecting the most accurate and economical techniques.

SEED RESEARCH

Studies continue in relating seed size and density to germinative capacity and subsequent seedling survival and growth.

It has been determined that for high density seed, germination was slightly lower for largest and smallest size classes, and this relationship became more pronounced as seed density was reduced.

Seedlings have been planted out for determination of future growth rate.

Various forms of seed treatment, prior to sowing, have been tried to improve germination, and these studies are continuing.

ECOLOGY

Studies continued on the regeneration and reforestation of pine and spruce and on the quality development of preferred species, especially sugar maple, in the tolerent hardwoods of southern Ontario.

Models have been developed to express the relationship of tree growth rate to environmental factors and tree attributes.

Current analysis of this data involves relating the results of the cultural isolation work to wound attributes (such as size, age, rate of healing, etc.) to whole-tree attributes (growth rate, age, etc.) and the type and amount of stain and decay associated with the wound.

DEVELOPMENTAL

The work of this unit has been to improve the techniques and equipment used in the tubed seedling programs. Laboratory work to eliminate frost heaving is in progress.

FIELD UNITS

NORTHERN ONTARIO

The main objective is to conduct a program that will provide information for the efficient silvicultural management of the spruce-fir forest in northern Ontario.



Hydraulically operated cone picking tower.

Effects of conventional harvesting have been under study for several years. The accumulated data on all study areas were analysed to determine the changes in species composition after logging or fire.

The effects of modified harvesting, in which spruce is favoured by scarification, show a substantial increase in spruce, but the balsam fir still predominates.

Data from seven areas are being analysed to test preliminary conclusions and to establish prediction relationships based on growth, competition, mortality and ingrowth.

Studies to control balsam fir, by close utilization, purposeful destruction and use of synthetic auxins to inhibit flowering, are being carried out.

CENTRAL ONTARIO

The following program is being carried out in this unit.

A study of the ecology, productivity, nutrient cycling, growth and nutrition, sites, specific gravity, regeneration and ground-flora relationships of red spruce, with comparative measurements on white and black spruce for ecosystem models of these species.

A study of the performance and efficiency with respect to growth and nutrition, the genetics and taxonomical relationships, including species and racial variation, within the spruce genus.

To investigate the taxonomical, physiological and genetical relationships within and between spruce species, a large number of other provenances, species and hybrids are being grown by the tubeling method. An accelerated growth rate and enforced dormancy, varying day-length and artificial low-temperature regimes enable the production of two-year seedlings within a single calendar year.

SOUTH-CENTRAL ONTARIO

This unit deals with the silvics, silviculture and management of the tolerant hardood forest. Of major importance is the need to establish for Algonquin Provincial Park a fair and sensible balance between competing land-use interests.

An experiment was established to study the differences in growth and quality which develop under different stocking levels in sugar maple and associated species.

It is also intended to demonstrate that felling of large or defective trees can be accomplished with minimal damage to residual trees, and that a viable logging operation can be conducted with light mechanical equipment and without removing all of the merchantable material.

A study is being conducted to determine the volume and value of different grades of yellow birch and sugar maple trees for various diameters.

SOUTHEASTERN ONTARIO

The principle project of this unit has been prescribed burning in tolerant hardwood stands to study its effects and determine its role in hardwood management.

It is now known that one or two burns, followed by cutting, will create excellent conditions for yellow birch regeneration.

Studies are being conducted in the regeneration problems of basswood, a valuable component of the tolerant hardwood forest. Propogation studies, including seed quality and germination, are included.

Various methods of establishing forest cover on shallow soils have been under investigation. One technique is the use of water-saturated peat wedges planted in augur-drilled holes.

SOUTHWESTERN ONTARIO

Two principal projects are being carried out to develop practical techniques for the selection, mass production, establishment and culture of fast growing, veneer-quality phenotypes of the commercially important hardwood species in agricultural Ontario.

A study on the chemical thinning and release by basal treatments on some common hardwood species was completed.

The use of the tubed seedling technique for production of hardwoods was investigated, and indications are that tubeling stock suitable for field planting can be grown from seed in one year.

WILDLIFE SECTION

Wildlife research has been directed toward the gathering of knowledge about the characteristics of economically important birds and mammals and toward finding means by which these could be of greater value to the trapper, hunter, naturalist and the general public.

Research projects have been developed around most of the major species of wildlife in Ontario. Staff recruitment and development has aimed for the provision of specialists to study these species. No attempt to organize the program on a regional basis has been made.

The Wildlife Research Station provided living accommodation and research facilities for Research Branch personnel, and staff and graduate students from the University of Toronto, McMaster University, University of Guelph, Queen's University and the School of Hygiene and Tropical Medicine, University of London (England).

Research programs dealt with the ecology, taxonomy, behavior and parasitological relationships of white tailed deer, timber wolves, black bears, beaver, marten, ground hogs, varying hare, mice, shrews, chipmunks and squirrels as well as waterfowl, songbirds, black flies, mosquitoes, fleas, mites and ticks.

FURBEARERS

Three projects dealing with beaver were conducted: An annual census of population levels in the Algonquin Provincial Park area; an annual survey of levels and distributions of populations in Patricia Central and West; and an investigation of population levels and distributions in the Indian Band area of Round Lake. An aerial survey of the Park beaver population, based upon an eight per cent sample, indicated a 35 per cent increase over the preceding year.

Over 400 otter carcases, previously collected, were examined; they yielded useful and interesting information. Male otters reach sexual maturity at two years and have an activity pattern that peaks in April and May. The cubs are born in April. The existence of the phenomenon of delayed implantation was confirmed.

WILDLIFE DISEASES AND PARASITES

The surveillance of the occurrences of diseases and parasites of wildlife continued; 107 specimens (61 mammalian and 46 avian) were processed. The Manual of Common Parasites, Diseases and Anomalies of Wildlife of Ontario, used by Fish and Wildlife field staff, was reprinted with the addition of four common parasites.

Two provincial surveys to determine the status of the kidney worm have been completed. The parasite was recovered from 1.5% of 126 weasels, 2.2% of 90 otters, 1% of 1,102 timber wolves, 0.9% of 854 coyotes, and 18% of 3,741 mink.

A manuscript, dealing in part with the incidence and frequency of occurrence of the kidney worm in Ontario, was prepared for inclusion in the book, "Diseases of Wildlife", being published by Iowa State University Press.

A complete parasitological and pathological examination of 68 beaver taken in a beaver population reduction program in the Chapleau district revealed that 97 per cent hosted some form of parasite.

A study of moose diseases and parasites in Chapleau Crown Game Preserve indicates that the black bear may be a final host of the tapeworm, *Taenia krabbei*, a role formerly considered to be played only by the wolf. Studies are continuing to determine if there is any difference in the morphology of the adult worm as it occurs in bears and wolves

The red fox was the major wildlife vector in the spread o rabies, followed by skunks.

Various techniques for age determination of foxes were tested. Tooth cementum annuli, prepared by a simple grinding process, is now the method used.

The unit has undertaken the development of a suitable baiting technique to administer an oral rabies vaccine to wildlife, particularly foxes.

UPLAND GAME AND WATERFOWL

Studies of food habits of four species of grouse reveathat catkin-bearing trees and shrubs, such as trembling aspen, the birches, ironwood and hazel, are important in the winter diet of ruffed and sharptailed grouse. The spruce grouse feeds almost entirely on jack pine, while the willow ptarmigan depends upon willow buds.

The aerial survey of productivity of Canada and snow geese in the James Bay-Southeastern Hudson Bay region showed that snow geese are down but that Canada geese had a good year.

The Kinoje Lake nesting study of Canada geese was continued with co-operation from six states of the Mississipp Flyway. Data were collected on changes in clutch sizes desertion, predation, egg measurements, nest site characteristics, temperatures, water levels, break up, and plan and animal phenology.

BIG GAME

A study to examine the relationships between a group of deer and its environment was conducted at two locations one in the Tweed district (Canonto study area), the other in the Parry Sound district (Pakesley study area). Emphasis was placed on basic productivity of the herd and hunting mortality to determine a standard to which other range types and population levels may be compared and to aid in interpretation of kill statistics.

A report on the effects of snow cover on mobility and local distribution of deer in Algonquin Provincial Park was prepared.

An assessment of the effects on deer activity of deer range improvement practices in a hemlock-hardwood deer yard was carried out and will continue with browse surveys, crotising counts and track counts.



Female polar bear with three cubs, Akimiski Island.

Intensive trials of the capabilities of remote sensing devices for censusing big game were held through cooperation with the National Aeronautical Establishment and other agencies. Tests were made with air-borne sensing devices in relation to big game management. This was primarily an assessment of techniques and interpretation of imagery obtained from infra-red scanning devices and photography.

PREDATORS

Most of the work on predators to date has been confined to wolves. Polar and black bears are now being considered, and aerial flights to determine the numbers and distribution of polar bears along the Hudson Bay wash were made.

Studies continue on the predator—prey relationships beween wolves and deer and beaver in an area where both groups are subject to human exploitation. The wolf population has remained essentially stable.

Radio collars, fitted to captured wolves, were used to monitor their movements and study behavior patterns. Work continued in the development of age determination of wolves and coyotes.

A study to determine the rate of reproduction of wolves and coyotes throughout various sections of the province, and to determine the influence of food and range conditions on productivity, continues.

It was learned during behavior studies of polar bears that they are afraid of humans and have an apparent sense of security in the sea.

A report on all possible uses within the Department of satellite photography is in preparation. The application of data from these photographs to studies of waterfowl and polar bears in the Hudson Bay lowlands is of particular interest.

PUBLICATIONS

Published during the year ending March 31, 1969.

FISHERIES SECTION

Budd, J. C., F. E. J. Fry, and J. B. Smith. Survival of marked Lake Trout in Lake Manitou, Manitoulin Island, Ontario. J. Fish. Res. Bd. Canada, 25(11): 2257-2268.

Fraser, J. M. Effect of air planting on domestic brook trout. Prog. Fish-Cult. Vol. 30, No. 3, July, 1968.

McDermott, L. A. and A. H. Berst. Experimental plantings of brook trout (*Salvelinus fontinalis*) from furunculosis-infected stock. J. Fish. Res. Bd. Canada, 25(12): 2643-2649.

Ricker, W. E. and K. H. Loftus. Pacific Salmon Move East. Fisheries Council of Canada, Annual Review, 1968.

Ryder, R. A. Dynamics and Exploitation of Mature Walleyes, *Stizostedion vitreum vitreum*, in the Nipigon Bay Region of Lake Superior. J. Fish. Res. Bd. Canada, 25(7): 1347-1376.

Special Reports

Martin, N. V. The Harkness Laboratory of Fisheries Research.

Department publication.

Research Report

A symposium on introduction of exotic species. Research Report #82.

- Section Reports
- Status of fisheries research projects for the year 1967. Section Report #67.
- Smith, J. B. Former lake trout spawning grounds in Lake Huron. Section Report #68.

FORESTRY SECTION

- Boissonneau, A. N. Glacial history of northeastern Ontario, Part II, Timiskaming-Algoma area. Can. J. Earth Sci. 5, pp 97-109.
- Burgar, R. J. and N. F. Lyon. Survival and growth of stored and unstored white spruce planted through the frost-free period. Ont. Dept. of Lands & Forests Research Report No. 84.
- Carmichael, A. J. Shallow sand cover gives best germination of black spruce seeds. Tree Planters' Notes. Vol. 19:1.
- Fayle, D. C. F. Radial growth in tree roots. Univ. of Toronto Tech. Rep. No. 9.
- Glerum, C. and G. Pierpoint. The influence of soil moisture deficits on seedling growth of three coniferous species. For. Chron: 44(5).
- Heimburger, C. Poplar breeding in Canada. In: Growth and utilization of poplars in Canada. For. Branch, Can. Dept. Fish and For. Publ. No. 1205, pp 88-100.
- Holowacz, J. Forestry USSR; industry and production. P.&P. Mag. of Can. pp. 112-120.
- Holowacz, J. Peculiarities of Canadian forestry, by Nikolaiuk, V. A., Artsybashev, E. S. and Telegin, N. P. "Lesnoe Khoziaistvo", No. 6, pp. 88-91. Trans.
- Ladell, J. W., A. J. Carmichael and G. H. S. Thomas. Current work in Ontario on compression wood in black spruce in relation to pulp yield and quality. North Central For. Expt. Sta. Res. Paper NC-23.
- Mullin, R. E. A note on field success of Dunemann stock. Jour. For. Vol. 66:9.
- Mullin, R. E. Spring planting with jack pine transplants recommended for blueberry-sweetfern sites in northern Ontario, For, Chron, Vol. 44:4.

- Mullin, R. E. Comparisons between seedlings and transplants in fall and spring plantings. Ont. Dept. of Lands & Forests Res. Rep. No. 85.
- Saul, G. H. Copper safely controls the roots of tubed seedlings. Tree Planters' Notes, Vol. 19:1.

WILDLIFE SECTION

- Brohx, P., D. Bates and D. Simkin. Vegetation patterns of the Hudson Bay Lowlands. (Map) Ont. Dept. of Lands & Forests (in press).
- Fyvie, A. Papillomatosis in a moose. Research Note (Wildlife) No. 12.
- Fyvie, A. Disease and parasitism in wildlife in Ontario as reported on Form Res. 49 in 1966 and 1967. Resource Mgt. Rpt. 93:1-12.
- Fyvie, A. Manual of Common Diseases, Parasites and Anomalies of Wildlife. Revisions and additions to 2nd edition. Ont. Dept. of Lands and Forests (in press).
- Fyvie, A. Dioctophyma renale (Goeze, 1782)—in Diseases of Wildlife. Iowa State University Press (in press).
- Hepburn, R. Experimental management of mixed conifer swamps for deer and timber in eastern Ontario. Section Report (Wildlife) No. 69 (in press).
- Hill, D. C., E. V. Evans and H. G. Lumsden. Metabolizable energy of aspen flower buds for captive ruffed grouse J. Wildl. Mgt., 32(4): 854-858.
- Lumsden, H. G. The displays of the sage grouse. Research Report (Wildlife) No. 83.
- Lumsden, H. G. A hybrid grouse (Lagopus x Canachites from northern Ontario. Can. Field-Nat. (in press).
- Pimlott, D. H., J. Shannon and G. Kolenosky. The ecology of the timber wolf in Algonquin Provincial Park. Research Report (Wildlife) No. 87 (in press).
- Simkin, D. W. Red-throated loon nesting in northern Ontario. Can. Field-Nat. 82(1): 49.
- Stephenson, A. B. Temperatures in a beaver lodge in winter J. Mammal. (in press).
- Watson, A., R. Parr and H. G. Lumsden. Differences in the downy young of red grouse, willow grouse and rock ptarmigan. Brit. Birds (in press).



Timber Branch is divided into three sections and their subordinate units with duties and responsibilities as follows.

REFORESTATION

- Tree Production and Distribution: Producing and distributing planting stocks; and securing and distributing quality tree seed.
- Agreement Forests: Administering forestry agreements with municipal corporations and conservation authorities for the management of their forest lands; and advising municipalities on by-laws respecting conservation of tree cover.
- Private Land Forestry: Promoting and implementing forestry programs for use by private landowners under The Woodlands Improvement Act.

SILVICULTURE

- Forest Resources Inventory: Continuing program of reinventory; compilation of reports and maps for Crown Management Units; checking of Company inventory data; determination of productive areas on timber licences; preparation of contour plans; and Air Photo Library and map photo service.
- Silvicultural Operations: Direction of the regeneration and stand improvement programs on Crown lands and on lands acquired for management under agreement.

TIMBER

- Management Planning: Supervision of management plan preparation; preparation of planning manuals and volume tables; calculation of allowable cuts; and the direction of access roads program.
- Scaling: Measurement of timber cut on Crown lands; development of new methods of measurement; and licensing and registration of scalers.
- Marketing and Forest Economics: Development of industrial expansion; analysis of the economics of timber production; mill licensing; publication of industry directories and of regional studies of timber availability; and compilation of forestry statistics.
- Sale of Timber: Issuance of timber licences; preparation of final returns for collection of stumpage charges; and compilation of cut statistics.

REFORESTATION SECTION

TREE PRODUCTION AND DISTRIBUTION

TREE PRODUCTION

To meet the increasing demand for planting stock, sufficient seed was sown at the ten forest tree nurseries for the production of 100,000,000 trees, an increase of 43 per cent in the production aim over 1967-8.

Nursery Stock Production Target by Nurseries

District	Nursery	Production Target
Kemptville	Kemptville	15,031,000
Kenora	Dryden	12,223,000
Lake Erie	St. Williams	7,909,000
Lake Simcoe	Midhurst	14,734,000
Lindsay	Orono	11,609,000
Port Arthur	Fort William	16,392,000
Swastika	Swastika	16,602,000
Chapleau	Chapleau	2,000,000
Sudbury	Gogama	1,500,000
Sault Ste. Marie	Thessalon	2,000,000
Total		100,000,000

Nursery Stock Production Target by Species

Species	Number of Trees
Red Pine Jack Pine Scotch Pine White Spruce	16,208,000 13,478,000 2,060,000 34,846,000
Other Species	 4,920,000

NURSERY STOCK CONTROL

The control and distribution of nursery stock, available for distribution as provided by Section 7 of The Forestry Act and for use of Ontario, resulted in the distribution of 52,157,150 trees during the year.



School children planting trees at Tuscarora Indian Reserve

Distribution of Nursery Stock, 1960-9

/ear			Planted on Private Land	Use of Ontario	Other	Total Trees
1960			13,809,125	27,562,247	310,753	41,682,125
1961			13,708,050	35,630,393	494,969	49,833,412
962			11,505,775	31,666,580	22,508	43,194,863
963			9,597,300	33,958,451	212,165	43,767,916
964			9,016,400	34,752,240	154,045	43,922,685
965			10,791,980	38,551,572	140,516	49,484,068
1966			11,312,900	34,481,899	3,225,055	49,019,854
967			9,542,325	41,839,242	330,894	51,712,461
968			10,219,517	44,248,398	337,255	54,805,170
1969			11,956,165	40,183,862	17,123	52,157,150
Distribution of Nursery Stock, 1968-	9					
pecies			Planted on Private Land	Use of Ontario	Educational or Scientific	Total Trees
White Pine			1,479,275	5,002,730	4,075	6,486,080
ed Pine			4,074,925	2,915,013	7,625	6,997,563
ack Pine			216,950	6,719,320	100	6,936,370
cotch Pine			1,252,655	83,801	200	1,336,656
Vhite Spruce			2,733,260	17,400,447	3,417	20,137,124
lack Spruce			151,050	7,181,963		7,333,013
lorway Spruce			542,160	90,454	1,250	633,864
ed Spruce			2,000	205,725		207,725
White Cedar			547,490	15.055		562,545
led Cedar			450	273		723
uropean Larch			82,625	8,229	25	90,879
amarack			51,475	53,915	25	,
			,	,		105,415
White Ash	• • • • • • • • • •		81,318	35,696	75	117,089
ilver Maple			149,996	46,140	250	196,386
ed Oak			86,948	5,222	25	92,195
arolina Poplar	• • • • • • • • •		336,053	70,065	25	406,143
lack Locust			94,175	11,500	25	105,700
lack Walnut			63,650	1,739	6	65,395
Others			9,710	336,575		346,285
Total			11,956,165	40,183,862	17,123	52,157,150
rees furnished for Private Lands, 19	68-9		Trees furn	ished for Private I	Lands, 1968-9 (cont	inued)
County or	Tree		County or		Tree	
erritorial District	Orders	Trees	Territorial E	District	Orders	Trees
lgoma	59	152,250				431,675
rant	69	96,650				75,600
ruce	90	204,250				466,700
arleton	115	304,475				138,725
ochrane	5	12,200	0			47,350
		,_00				,
						continued

County or Territorial District	Tree Orders	Trees
Frontenac	91	140,675
Glengarry	49	200,825
Grenville	68	322,725
Grev	113	414,450
Haldimand	34	56,200
Haliburton	22	16,050
Halton	118	363,975
Hastings	65	308,450
Huron	38	25,650
Kenora	18	57,575
Kent	27	19,050
Lambton	47	59,280
Lanark	59	274,450
Leeds	50	178,450
Lennox & Addington	43	68,425
Lincoln	56	54,875
Manitoulin	3	3,275
Middlesex	150	205,946
Muskoka	70	157,550
Nipissing	18	40,975
Norfolk	181	211,550
Northumberland	71	317,325
Ontario	161	256,425
Oxford	65	139,850
Parry Sound	68	179,875
Peel	142	425,274
Perth	46	77,150
Peterborough	86	324,993
Prescott	16	397,925
Prince Edward	28	20,950
Rainy River	26	71,938
Renfrew	145	1,391,825
Russell	25	216,375
Simcoe	224	880,110
Stormont	20	100,375
Sudbury	39	110,800
Thunder Bay	103	200,325
Timiskaming	10	10,550
Victoria	58	47,789
Waterloo	93	256,775
Welland	110	170,175
Wellington	119	607,750
Wentworth	132	318,500
York	247	322,835
Total	4,051	11,956,165

Trees Furnished, 1968-9

Chapleau	12,200	2,672,00
Cochrane		2,543,00
Fort Frances	71,938	1,500,80
Geraldton	<u></u>	5,008,40
Kapuskasing		3,969,30
Kemptville	2,071,200	1,661,38
Kenora	57,575	2,063,82
Lake Erie	963,151	145,74
Lake Huron	2,505,000	495,21
Lake Simcoe	2,316,319	428,54
Lindsay	1,172,857	306,39
North Bay		1,636,00
Parry Sound	337,425	739,39
Pembroke	1,432,800	1,576,28
Port Arthur	200,325	2,518,03
Sault Ste. Marie	152,250	2,722,40
Sioux Lookout		2,806,20
Sudbury	114,075	2,386,97
Swastika	10,550	3,918,61
Tweed	538,500	872,51
White River		815,00
Unclassified		117,85
Total	11,956,165	40,183,86
Nursery stock purchased Clark Pulp and Paper Co under Regeneration Agree Province of Ontario	mpany Limited ements with the	2,271,16
Grand Total	11,956,165	42,455,02

^{*}Includes nursery stock furnished to all provincial government departments for planting on land owned or managed by the government.

SEED COLLECTION

The inventory of forest tree seed in storage at the Ontari Tree Seed Plant at Angus, as of June 1, 1968, was abou 2,900,000,000 viable seeds of 47 species, weighing 470,00 ounces or nearly 15 tons, and valued at approximatel \$485,000.00. The 1968 crop year was a very poor one for most species. More than half of the quantity collected was black walnuts.

1968 Seed Crop

Species	Bushels Collected
Red Pine	808
ack Pine	2,516
Black Spruce	
Black Walnut	
Other Species	276
Total	8,240

TREE IMPROVEMENT

Through application of the scientific principles of forest genetics we are improving the quality and increasing the quantity of available seed. Our approaches include the selection of additional "plus trees", the development of seed production areas, and the planting of grafted trees in seed orchards. The program is concerned mainly with white pine, red pine, jack pine, white spruce, black spruce and red spruce.

During the year, we collected 7,500 scions from "plus rees"; these were grafted at our four co-operating nurseries. A total of 21.0 acres of seed production area was thinned, released or improved in other ways for seed production purposes. Planting of 2,600 grafted trees was completed on 20.0 acres of seed orchard.

Another phase of our program was the grafting of 1,000 cions from white pine trees which have shown resistance to blister rust disease.

As of March 31, 1969	Number	Acres
eed Production Areaseed Orchards		287.2 104.8

NURSERY SOIL MANAGEMENT

Our objective is to maintain the balance of soil nutrients to produce top-quality seedlings. During the year, 448 soil namples and 438 plant samples (consisting of 11,695 seedings) were analyzed for chemical composition and physiogical properties. The analysis data is used to evaluate soil and plant conditions and in the preparation of the soil mendment program needed to produce high quality stock.

Herbicides and soil fumigants are being tested constantly. When a new technique proves effective in nursery practice, t is used to reduce disease, control weeds, and increase eed germination and seedling growth.

Disease and nutrient studies are also being carried out on co-operative basis with staff of Research Branch and the canada Department of Forestry and Fisheries.

AGREEMENT FORESTS

Section 2 of The Forestry Act authorizes the Minister to enter into agreements with the owners of lands suitable for forestry purposes for the management of such lands, and to make grants to any conservation authority or to any municipality to encourage and assist it in the acquisition of lands that are to be managed under such an agreement.

A total of \$136,068.92 in grants to assist with the acquisition of 6,730.90 acres of land was paid during the year. Canada will contribute \$40,102.56 of the foregoing amount to Ontario under agreement made between Canada and Ontario.

TREES CONSERVATION

Under authority of The Trees Act, and with the approval of the Minister of Lands and Forests, counties or municipalities in territorial districts may pass by-laws with respect to private lands to restrict and regulate the destruction of trees by cutting, burning or other means. Such by-laws have been passed by the following municipalities to permit the cutting of designated species to specified minimum diameter limits.

Counties: Brant, Bruce, Dufferin, Elgin, Grey, Haldimand, Halton, Hastings, Huron, Lambton, Leeds & Grenville, Lincoln, Middlesex, Norfolk, Northumberland & Durham, Oxford, Peel, Perth, Renfrew, Waterloo, Welland, Wellington, and Wentworth.

Townships: Brunel and Hudson.

PRIVATE LAND FORESTRY

The intent of the private land forestry policy is to improve the management of privately owned forest land. Ultimately, the benefits of this improvement will be an increased flow of better-quality logs and other products for wood-using industries and greater returns to woodland owners. The private land forestry program provides a free advisory service to landowners on planning and establishing plantations and tending and marketing forest crops.

In addition, under The Woodlands Improvement Act, 1966, landowners may enter into agreement with the Minister for improvement of their lands through tree planting and rehabilitation of existing woodlands. Department staff plant trees and carry out stand improvement in accordance with mutually agreed upon plans at no cost to the owner. The owner pays for the nursery stock and agrees to protect his woodland.

AGREEMENT UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1969 (continued)

Agreement with	Date of Agreement	Number of Acres Added during year	Total Acres
Government of Canada: National Capital Commission	Aug. 16, 1961		3,632.0
National Capital Commission	7105. 107.100		,
Conservation Authorities:	D 42 4051		4,299.0
Ausable River	Dec. 13, 1951	66.50	,
Big Creek Region	Dec. 2, 1954	66.50	3,766.4 501.0
Catfish Creek	Dec. 19, 1962	_	195.0
Central Lake Ontario	Sept. 24, 1963		200.0
Crowe Valley	Aug. 21, 1963	100.00	
Ganaraska Region	Jan. 31, 1947	100.00	8,548.6
Grand River	Mar. 18, 1952		5,866.3
Hamilton Region	Oct. 19, 1962		12.5 1,256.7
Lakehead Region	May 15, 1958		300.0
Lower Thames Valley	Aug. 12, 1964	_	949.0
Maitland Valley	Apr. 1, 1955	_	1,928.0
Metropolitan Toronto and Region	Apr. 11, 1951		16,497.0
Moira River	Nov. 28, 1951	545.00	6,666.0
Napanee Valley	Oct. 28, 1954		186.0
Niagara Peninsula	June 6, 1963	100.00	7,255.0
North Grey Region	June 25, 1958	100.00	1,545.(
Otonabee Region	May 15, 1963	100.00	1,532.0
Otter Creek	Apr. 26, 1957	810.00	3,816.0
Sauble Valley	Sept. 29, 1959	250.00	13,258.0
Saugeen Valley	Dec. 15, 1952	450.00	1,638.5
South Nation River	Mar. 28, 1960	450.00 —	150.0
Sydenham Valley	July 13, 1965 Apr. 11, 1951		3,444.3
Counties:	Nov. 15, 1952		50.0
Brant	Jan. 20, 1950		15,533.3
Bruce	July 30, 1964		680.0
Carleton	Nov. 26, 1930		2,405.0
Dufferin	Dec. 21, 1937		8,378.0
Grey	Mar. 14, 1950		1,498.0
Halton	Nov. 27, 1950		1,439.0
Huron	Dec. 23, 1953		75
Kent	July 5, 1940		3,635.0
Lanark	Apr. 24, 1940	1,345.00	10,217.0
Leeds & Grenville	Apr. 3, 1952		1,186.
Lennox & Addington	Mar. 8, 1954	458.40	1,793.
Middlesex	June 10, 1924	100.00	5,819.
Ontario	July 9, 1930	120.00	3,941.
Oxford	Sept. 1, 1950	—	716.
Prescott and Russell	Mar. 15, 1937	225.00	24,750.
Renfrew	Dec. 26, 1951	922.00	12,029.
			continued.

AGREEMENT UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1969 (continued)

Agreement with	Date of Agreement	Number of Acres Added during year	Total Acres
Counties: (continued)			
Simcoe	June 19, 1925	452.00	21,145.74
Stormont, Dundas and Glengarry	Sept. 20, 1949	200.00	2,248.45
Victoria	Aug. 10, 1928	—	8,319.00
Waterloo	Apr. 17, 1950		710.48
Wellington	June 18, 1964		1,100.00
Wentworth	Nov. 27, 1952		989.30
York	Mar. 27, 1924	487.00	4,725.08
Townships:			
Bonfield	Apr. 1, 1952		60.00
Charlottenburgh	Apr. 1, 1955	glockerous.	175.00
Cramahe	Jan. 4, 1964		162.00
Cumberland	May 29, 1952		808.44
Darlington	Aug. 19, 1964		` 140.00
Galway and Cavendish	Nov. 1, 1952		619.00
Machar	Dec. 30, 1963		90.00
Marlborough	Nov. 21, 1953		200.00
Mosa	July 16, 1964		144.00
Torbolton	Mar. 28, 1953		430.80
Williamsburg	Oct. 19, 1962	_	400.00
Summary			
1 Government of Canada			3,632.00
23 Conservation Authorities		2,421.50	83,810.43
24 Counties		4,309.40	133,385.02
11 Townships		,	3,229.24
59 Total		6,730.90	224,056.69

Under Regulations of the Act, 33 private forest management areas were designated covering all of southern Ontario. Eligibility for assistance was extended to more management areas each year; as of January 1, 1969, assistance became available throughout all of southern Ontario. Management plans for 23 of these designated areas have been prepared. The total number of agreements in effect as of March 31, 1969, was 1,015, comprising a total area of 66,914 acres.

EXTENSION FORESTRY ACTIVITIES

- 1. Conducted tours for school groups and others at St. Williams, Orono, Midhurst and Kemptville Forest Tree Nurseries and the Ontario Tree Seed Plant at Angus. Approximately 7,000 school children participated therein.
- 2. Co-operated in preparing and manning exhibits at the

Toronto C.N.E., the Ottawa C.C.E.A., the London Fair, the Royal Winter Fair, and the International Ploughing Match. Districts prepared and manned over 50 exhibits at local fairs and exhibitions.

- 3. Co-operated with the Ontario Department of Agriculture and Food in providing guidance to the Ontario Maple Syrup Producers' Association and support for the Ontario Christmas Tree Growers' Association Incorporated.
- 4. Co-operated in the revision of publications required to interest and instruct landowners in essentials of private land forestry.
- 5. Provided instruction in forestry and conservation to sixty farm boys and girls at the leadership training camp organized by the Ontario Department of Agriculture and Food.

SUMMARY OF THE FORESTRY ADVISORY AND ASSISTANCE SERVICES PROVIDED TO PRIVATE LANDOWNERS AND ORGANIZATIONS, 1968-9

			24.04
Α.	Total number of inquiries received		21,945
В.	Number of field inspections made	1,889 1,112 147 1,412	4,493
C.	Number of properties for which management programs were prepared	237 452	689
D.	Total number of acres of private forest land for which management programs were prepared	6,376 36,292	42,668
E.	Total number of acres of forest land treated during the year under the Woodlands Improvement Act	7,289 6,440	13,729
F.	Total volume of timber marked under the advisory service program	7,930 Mfbm 7,853 cords	
G.	Number of youth groups serviced (a) 4H Forestry clubs (b) 4H Conservation clubs (c) Resource rangers (d) other Groups—Boy Scouts, Girl Guides, etc.	23 17 3 130	164
H.	Public education activities (a) newspapers—articles —paid advertisements (b) number of radio and T.V. programs arranged (c) number of field days or tours (d) number of demonstration areas established (e) direct mailings (f) number of exhibits arranged (g) miscellaneous	2,011 8 28 272 25 978 53 25	3,350
1.	Hours spent on forestry instruction	26 6	32

SILVICULTURE SECTION FOREST RESOURCES INVENTORY

Aerial photography was completed on 18,926 square miles in northern Ontario. In the re-inventory program, field work was carried out on 11,380 square miles in Sioux Lookout District.

Forest stand maps and tabulated inventory data were completed for 7,750 square miles in Fort Frances, Kenora and Sioux Lookout Forest Districts. The multiplex machine was used to plot the contour and form lines of four Provincial Parks covering an area of 20,300 acres.

The photo processing unit produced 130,436 contact prints, 2,447 mosaics, 2,683 enlargements, 365 diapositives, 1,351 copy negatives and 4,136 square feet of repropositives. Some of these were sold to outside organizations.

The sharp increase in cash value during the past year is the direct result of using an automatic photo processor which now enables all production to be carried out by the Unit.

Gross Value of Photoprocessing Production

 Receipts	Work	Total
 \$50,755.68	\$24,592.23	\$75,347.91
 56,754.20	31,296.58	88,050.78
 53,270.95	30,842.42	84,113.37
 63,451.15	51,258.79	114,709.94
	Receipts\$50,755.68\$56,754.20\$53,270.95	Receipts Work \$50,755.68 \$24,592.23 56,754.20 31,296.58 53,270.95 30,842.42

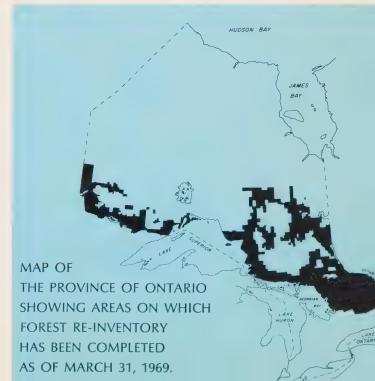
SILVICULTURAL OPERATIONS

Silvicultural Operations include the regeneration and tending of forests on Crown and Agreement Forest lands and the development of new techniques related to these activities. Also included are special projects involving Junior Forest Rangers and Correctional Camps operated by the provincial Department of Correctional Services and the federal Department of Justice.

Regeneration includes both natural and artificial regeneration. Site preparation is usually necessary; it disturbs both the forest floor and top soil, creating more suitable conditions for natural regeneration, seeding or planting. Site preparation also promotes better survival and growth.

In promoting natural regeneration, site preparation isually involves use of heavy equipment, adjacent to seed ources. Harvesting systems may also be modified with the





SUMMARY OF SILVICULTURAL OPERATIONS

On Crown Land and Agreement Forests, 1968-9

	Crown Lands	Agreement Forests	Total Acreage
1. Regeneration			
a) Natural			
—by site preparation	16,704	3	16,707
—by modified			
harvest cutting	9,747	338	10,085
—by seed tree	2.200		2 260
system	3,260		3,260
b) Artificial			
Direct seeding	2 707		2 707
—ground —aerial	2,797 6,821		2,797 6,821
Planting	0,021		0,021
—nursery stock.	58,622	3,140	61,762
—tubed seedlings	18,546	destroyen	18,546
Total	116,497	3,481	119,978
2. Tending			
Hand cleaning	13,591	1,444	15,035
Herbicide spraying .	25,236	322	25,558
Thinning,		4 = 0.0	= 070
improvement cutting	3,534	1,538	5,072
Girdling, frilling, poisoning	7,085	593	7,678
Marking for	7,003	333	7,070
improvement cut	3,762	153	3,915
Pruning	1,582	2,434	4,016
Fertilization	95		95
Total	54,885	6,484	61,369
Total Area Treated	171,382	9,965	181,347
3. Site preparation			
For seeding and			
planting			*54,029

^{*}This area is shown separately to avoid duplication.

TREES PLANTED ON AGREEMENT FORESTS, 1968-9

Ownership	Number o	of Trees
Government of Canada National Capital Commission		416,6
Conservation Authorities: Ausable	161,620	
Big Creek	26,500	
Catfish	3,000	
Ganaraska	46,025	
Grand	23,500	
Metro Region	11,200	
Moira	20,000	
Napanee	11,500	
North Grey Region	37,000	
Otonabee Otter Creek	30,000 19,500	
Sauble	43,000	
Saugeen	63,325	
South Nation	52,750	
Sydenham	20,000	
-		568,9
Counties		
Bruce	200	
Carleton	50,000	
Halton	27,950	
Lanark	40,000	
Leeds and Grenville	670,300	
Middlesex	1,000	
Northumberland	10,000 37,400	
Ontario	158,000	
Renfrew	170,250	
Simcoe	322,325	
Waterloo	9,000	
Wellington	900	
Wentworth	19,000	
York	5,020	
		1,521,3
Townships Charlottenburg	2,500	2,5
Total		2,509,4

FREES AND ACREAGE PLANTED BY OWNERSHIP, 1968-9

	Number of Trees			Area in Acres		
)wnership	Nursery Stock	Tubed Seedlings	Total	Nursery Stock	Tubed Seedlings	Total
. Crown						
(a) Unalienated	15,662,276	6,096,166	21,7 58,442	23,809	5,400	29,209
(b) Licensed	2 4,229,382	13,094,034	37,323,416	34,813	13,146	47,959
. Agreement Forests	2,509,440	_	2,509,440	3,140	_	3,140
otal	42,401,098	19,190,200	61,591,298	61,762	18,546	80,308

etention of strips of green timber or single trees to provide he seed.

Artificial regeneration involves site preparation of large reas for planting and seedling; planting nursery stock by machine or by hand; production and planting of tubed eedlings; and seeding, both ground and aerial.

Tending includes treatments such as cleaning, herbicide praying for release, thinning, improvement cutting, and bruning during the life of the forest.

TREES PLANTED BY SPECIES, 1968-9

	Crow	n Lands	Agreement	t
species	Nursery Trees	Tubed Seedlings	Nursery Trees	Total Trees
White Pine	4,523,700	625,400	111,475	5,260,575
Red Pine	2,417,900	3,512,110	775,175	6,705,185
ack Pine	7,095,227	6,671,900	533,300	14,300,427
Vhite Spruce	17,523,505	2,378,511	842,125	20,744,141
Black Spruce	7,673,775	5,914,779		13,588,554
Other Species	657,551	87,500	247,365	992,416
Total	39,891,658	19,190,200	2,509,440	61,591,298

SILVICULTURAL DEVELOPMENT

This activity concerns development and evaluation of new equipment and techniques that may be used to improve silvicultural operations. It involves field testing of equipment and techniques, which for the most part have performed satisfactorily under research conditions. Further studies on an operational scale are an essential step to determine costs and performance under field conditions.

Current work includes development and initiation of derial forest fertilization and field tests of new chemical nerbicides and silvicides; developing procedures to evaluate work done in the field; and investigating new equipment

Measuring growth of red oak tree following thinning operation, Lake Huron Forest District.



for site preparation and planting.

Junior Rangers. During the summer months, the Department employs 17-year-old students under the Junior Forest Ranger Program. Some of these students spent part of their time doing work for Timber Branch. A total of 12,000 mandays were devoted to cone collection, nursery work, tree planting and forest tending. Eleven thousand acres were treated under this project.

Correctional Camps. The Department supplied technical guidance for forestry programs carried out by seven forestry camps operated by the provincial Department of Correctional Services and the Beaver Creek Correctional Camp operated by the federal Department of Justice Correctional Camps.

The seven provincial camps provided 20,000 man-days labour for this Department. The men cleared roads, cam sites, fireguards and compartment boundaries; they repaire fences, built bridges, collected cones and burned brush; at they planted trees, pruned and thinned trees, and remove cull trees from stands totalling 2,400 acres.

The men from the federal camp worked 2,700 man-da for this Department in pruning, thinning, cull tree removand related forestry work.

A bulldozer skids tree lengths to piling grounds, Linds Forest District.



TIMBER SECTION

OREST MANAGEMENT PLANNING

The development of forest areas is based on management clans that provide detailed information about the volume of nnual cut, cutting methods, regeneration treatments, road and camp locations, and other facts essential to orderly nanagement.

Standard management plans are based on inventory data athered using photo interpretation, point sampling, and computer compilation methods. The information is entered in stand ledgers, which also serve as a record of changes. Standard plans have been prepared following the re-invenory of Crown management units started in 1958. The essenials of this type of planning are contained in the Manual of Management Plan Requirements.

The initial management plans, based on the inventory nethod used prior to 1968, are retained until replaced with tandard plans, and form the basis for the management of a arge proportion of the Crown management units in the Province.

Management plans form a framework into which operating plans are fitted. An operating plan shows in detail the stands to be cut, regenerated, and tended, and the roads to be built and other improvements to be made to carry out operations on the management units.

1. Crown Management Units. The plans for these units are prepared by Department staff. There are 77 Crown management units comprising an area of 93,052 square miles with 70 management plans:

	standard management plans in force	11,755 sq. mi.
11	plans being processed for Ministerial	
	approval	7,223 sq. mi.
	initial management or operating plans	
	in force	67,019 sq. mi.
	management units not under plans	
	•	

2. Company Management Units. The management plans for Company Management Units are prepared by the licensees. There are 57 Company units with 93,126 square miles under licence to 38 Companies. The status of management planning for these units is as follows:

	approved management plans	85,792 sq. mi.
4	plans being processed for Ministerial	
i	approval	2,734 sq. mi.
3	plans being revised or prepared	4,600 sq. mi.

3. Agreement Forest Units. The management plans for these units are prepared by Department staff. There are 60 units covering approximately 350 square miles (or 224,056)

acres) with 60 management plans. The status of management planning is as follows:

14	approved plans	74,986 acres
15	plans being processed for approval	34,186 acres
14	plans in process of preparation	47,980 acres
17	units on annual plans and land acquired	
	since 1960 to 1962 inventory	66,904 acres

ACCESS ROADS

A total of 171.8 miles of new roads was constructed, and 143.0 miles of existing roads were improved during the fiscal year. Road work was carried out under two categories.

- 1. Logging Access Roads are primarily designed for the extraction of timber products. The costs of the road are recovered over a five-year period through an increase in stumpage rates on the timber which has been made accessible. Some 26.6 miles of new roads were built, and 39.7 miles were improved.
- 2. Forest Access Roads are built for a variety of purposes such as timber extraction, forest improvement, forest protection, hunting and fishing, research and other forest uses. Under this category, 145.2 miles of new roads were built and 103.3 miles were improved.

SCALING

Scaling is carried out in the Province to determine quantities of wood cut for billing purposes, for forest management, and for statistical analysis of economic conditions and trends in the wood-using industries. Each of these purposes requires different standards of accuracy; so scaling methods must be developed to achieve the required accuracy at minimum cost. Changes in logging methods and changes in utilization standards have also changed scaling methods; these include tree-length scaling, sample scaling and weighing.

From information gathered on weight-volume relationships, it is apparent that weighing is a feasible method of wood measurement. Further tests are required in some areas, but operational weighing of hardwood pulpwood for billing of Crown charges will commence in the 1969-70 fiscal year.

Computer analysis of scaling data and preparation of Crown dues accounts is now effective across the province, allowing a monthly billing system to be initiated in 1969-70 and to come into full use the following year.

Scaling examinations were held at the following locations on the dates noted: Onatrio Forest Technical School, Dorset, April 10-11, 1968; North Bay, May 9-10, 1968; and Sault Ste.

Marie, September 26-27, 1968. A total of 101 new scalers were licensed at these courses, and 1,573 licences were renewed for a three-year period.

MARKETING AND FOREST ECONOMICS

Throughout the 1968-9 fiscal year, Canada's economy as a whole might be described as buoyant. Within this general context, the principal components of the forest-based industries provide a splendid example of the effect of the forces of supply-demand on product prices, as shown below:

Industry Selling Price Indexes* (1956=100)

	Veneer Plywood	Lumber Mills	Pulp Mills	Paper Mills
1968—April	103.0	125.0	102.5	113.7
May	103.5	124.7	102.3	113.6
June	103.8	126.0	102.6	113.6
July	104.9	125.9	102.3	113.2
August	106.2	127.8	102.2	113.1
September	107.0	130.6	102.2	113.2
October	105.0	130.1	101.8	113.2
November	106.1	134.1	101.7	113.2
December	108.9	137.8	101.7	113.4
1969—January	112.6	141.5	101.4	116.7
February	115.6	150.5	101.5	116.9
March	116.5	154.9	101.8	116.8

^{*}Source: Canadian Statistical Review.

The causative events underlying these figures, which are for Canada, mostly lie outside this province. New construction of pulp mills had added capacity at a faster rate than the increase in demand, forcing prices downward. The current surplus in newsprint (due in part to a decrease in newspaper advertising) has held in check a general rise in paper prices. On the other hand, lumber and plywood have been in very short supply because British Columbia experienced unusually heavy snowfall, which prevented logging and hauling operations, and mills closed as their inventory of wood was drawn down. Since March, prices of these products have reverted to normal levels.

The total volume of Crown timber cut in the province in 1967-8 was 436 million cubic feet (up three per cent from

the previous year). Early indications are that the 1968-9 c may be somewhat less than the above figure.

In contrast, the production of pulp chips from mill was reached a total of 670,764 bone dry tons in 1968, an increa of almost 140 thousand tons or 26.4 per cent for the year The production graph since 1960 corresponds very close to a 19-per-cent compound-interest curve.

The highlight of this Unit's activity for the year is represented by the report entitled "The Ontario Forest Industr Its direct and indirect contribution to the economy". this study, which was directed by Hedlin, Menzies at Associates Ltd., the objective was to measure the tot revenue to governments that could be attributed to en ployment and manufacturing in the forestry sector. Mucof the research in statistics, on which the analysis was base was carried out through this Unit.

The report shows that the Northwestern Economic Region has the greatest dependence on forest industries, and the 69 per cent of all manufacturing employment in that area wood oriented. A total of 78,000 man-years of employments provided by Ontario forest industries; an addition 135,000 in service and supporting industries gain employment by virtue of timber utilization. This is a ratio of 1:1.2 in direct to indirect employment.

It is estimated that \$104.3 millions of the provinci revenue, and \$184.2 millions of the federal revenue, in 196 can be traced to forest-based activities, at the primary lev of cash flow. Through respending, these amounts wou have a multiplier effect on government revenues.

A very large part of the information provided in the report has never been available previously, and it make interesting statements on the relationship between industries. For example, some 28 million tons of raw materia and finished commodities hauled by the transportation in dustry, representing a massive 25 per cent of rail freign revenues, originated with the forest industry. Another in portant item shown in the report is that the degree of wood industry manufacturing in Ontario is much greater than for the rest of Canada. For every 100 cubic feet of roundwood processed, the value added by manufacture is \$107 in Ontario, \$65 in Quebec, and \$37 in British Columbia.

In addition to this special assignment, the Unit continue to promote industrial expansion, carry out economic analys of timber production, collect and compile statistics, and license mills. Preliminary work was undertaken for a surve to determine the characteristics and attitudes of private lar owners in southern Ontario particularly with respect recreation, hunting and fishing, and commercial timber production. The survey, itself, will be carried out during the 1969-70 fiscal year.

ONTARIO-PRODUCED PULP CHIPS, 1968

	Northwestern Region*	Northeastern Region*	Southern Region*	Quebec	U.S.A.
Production					
No. of producing mills	13	35	27		_
Quantity (bone-dry tons)	195,014	335,481	140,269	****	
Percentages of total	29.1%	50.0%	20.9%	_	
Consumption					
No. of consuming mills	4	4	3	6	4
Quantity (bone-dry tons)	326,487	105,045	124,433	104.812	9,987
Percentages of total	48.7%	15.7%	18.6%	15.6º/o	1.4%

^{*}Department's Administrative Regions.

Felling mature white pine.



SALE OF TIMBER

SUMMARY OF VOLUME AND VALUE OF WOOD CUT FROM CROWN LANDS, 1967-8

Species	Volume (cu. ft.)	Stumpage Value
Softwoods		
Balsam	14,524,889.68	\$ 297,422.79
Cedar	567,352.06	14,251.48
Hemlock	2,855,371.05	71,443.21
Pine, jack	107,874,646.35	2,826,861.16
Pine, red	7,022,006.50	432,163.01
Pine, white	24,315,943.67	1,279,927.94
Spruce	220,569,233.89	8,297,099.68
Tamarack	120,150.11	2,285.00
Christmas Trees	27,563.50	2,782.25
Fuelwood	630,534.25	4,620.18
Total	378,507,691.06	\$13,228,856.70
Hardwoods		
Ash	75,633.77	3,286.57
Basswood	462,449.05	28,141.74
Beech	351,135.52	8,359.88
Birch, white	5,653,793.67	77,538.31
Birch, yellow	8,370,005.23	701,005.77
Butternut	1,744.86	91.06
Cherry	19,772.34	875.92
Elm	422,662.16	16,037.61
Maple	10,004,081.90	440,903.20
Oak	281,472.71	14,122.47
Poplar	27,682,396.97	272,320.75
Hardwood	2,954,448.71	30,852.33
Fuelwood	1,108,020.90	9,450.77
Total	57,387,617.79	\$ 1,602,986.38
Total	435,895,308.85	\$14,831,843.08

NOTE: The value of export levy (\$34,576.24) is not included in above.

CROWN TIMBER SALES, 1968-9

New Licences issued under section 2 C.T.A	9.7 square miles
New Licences issued under	
section 3 C.T.A	9,568.3 square miles
New Licences issued under	
section 5 C.T.A	
	9,578.0 square miles
Abandonments: Licensed areas in the	amount of 11,827.8
square miles were abandoned.	



Growing timber and controlling erosion on the hills of Dufferin County.

AREAS UNDER CROWN TIMBER LICENCE

Areas in square miles, March 31

	,			
Year	Licences under Section 2 C.T.A.	Licences under Section 3 C.T.A.	Licences under Section 5 C.T.A.	Total Area
1965	2,565.0	103,347.5	4.9	105,917.4
1966	2,466.7	100,362.8	1.2	102,830.7
1967	2,006.5	104,269.9	nil	106,276.4
1968	1,704.2	104,134.6	74.0	105,912.8
1969	1,664.7	101,924.3	74.0	103,663.0

LICENSING OF MILLS

Mills licensed under The Crown Timber Act are distributed as shown in the following table. The trend toward fewer mills continues with a shift from small to larger sawmills dominating the change.

Licensed Mills	1968	1967
SAWMILLS:		
Lumber capacity over 50 M fbm	27	28
Lumber capacity 10 to 50 M fbm	101	100
Lumber capacity under 10 M fbm	593	644
Miscellaneous sawn products	99	96
VENEER MILLS	29	29
PULP MILLS	25	25
Total	874	922

VOLUME OF WOOD CUT FROM AGREEMENT FORESTS

In fiscal years ended March 31

	1969	1968	1967	1966	
Pulpwood (cords)	12,791.59	10,296.46	10,015.34	9,512.05	
Sawlogs (cu. ft.)	162,332.29	97,854.79	130,447.27	111,837.45	
Poles, Posts, Piling (cu. ft.)	5,495.15	4,676.82	85,815.31	74,280.45	
Fuelwood (cords)	337.90	217.30	1,889.63	730.39	
Miscellaneous	_	_	_	_	
Total, all Products*	1,283,834.09	996,201.21	1,228,215.03	1,056,725.30	

Equivalent cu. ft.*

VOLUME OF WOOD CUT FROM AGREEMENT FORESTS

In fiscal years ended March 31

	1969	1968	1967	1966
Pulpwood (cords)	\$52,282.78	\$46,183.09	\$ 64,045.26	\$ 72,050.10
Sawlogs (cu. ft.)	14,287.78	14,702.32	17,082.60	17,758.84
Poles, Posts, Piling (cu. ft.)	1,065.66	1,762.15	33,344.66	30,381.33
Fuelwood (cords)	1,062.25	511.12	10,119.01	3,666.17
Miscellaneous	5,641.52	6,313.79	5,635.98	7,375.60
Total, all Products*	\$74.339.99	\$69,472.47	\$130,227.51	\$131,232.04

Equivalent cu. ft.*

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1967-8

Species	Pieces	Cords	Feet	Equiv in c
BOARD FOOT MEASURE				
ONTARIO SCALE				
	(000		377 003	70.4
Ash	6,880		377,023	70,4
Balsam	10,622		250,597	46,8 461,2
Basswood	42,283 30,424		2,467,554 1,872,274	349,9
Birch, white	123,670		5,829,678	1,089,6
Birch, yellow	620,116		44,465,370	8,311,2
Butternut	147		9,335	1,7
Cedar	7,176		212,872	39.7
Cherry	1,843		105,782	19,7
Elm	29,577		2,250,554	420,6
Hemlock	161,554	1	11,874,831	2,219,5
Maple	680,015	1	49,197,233	9,195,7
Oak	27,050		1,502,109	280,7
Pine, jack	219,797		7,751,973	1,448,9
Pine, red	387,853		26,699,917	4,990,6
Pine, white	1,218,850		107,112,816	20,021,0
Poplar	170,104		8,362,858	1,563,1
Spruce	318,768		13,007,339	2,431,2
Tamarack	1,793		92,748	17,3
Total	4,058,522		283,442,863	52,979,9
TREE LENGTH MATERIAL				
Balsam	26,248		1,340,112	250,4
Pine, jack	451,105		21,430,911	4,005,7
Pine, red	1,199		99,618	18,6
Pine, white	103		16,680	3,1
Spruce	444,961		16,471,815	3,078,8
Total	923,616		39,359,136	7,356,8
Total Board Foot Measure	4,982,138		322,801,999	60,336,8
CUBIC FOOT MEASURE				
SAWLOGS				
Ash	62		419.21	4
Balsam	312,154		1,170,027.79	1,170,0
Birch, white	221,901		1,135,345.96	1,135,34
Birch, yellow	2,682		321.87	32
Cedar	50,390		331,550.88	331,5
Maple	2,199		263.86	26

Stumpage Dues Bonus Value \$ 1,883.56 1,315.25 3.198.81 1,002.38 1,762.54 2,764.92 12,337.93 15,789.41 28,127.34 2,808.42 5,517.98 8,326.40 8,744.58 25,484.78 34,229.36 222,327.24 478,137.86 700,465.10 14.00 77.06 91.06 639.59 902.63 1,542.22 529.02 346.90 875.92 11,252.94 4,753.85 16,006.79 35,624.53 22,891.45 58,515.98 245,986,47 187,406.15 433,392.62 7,382.61 6,720.56 14,103,17 31,136.07 7,753.09 38,889.16 133,110.65 127,165.16 260,275.81 526,101.62 583,700.42 1,109,802.04 12,544.21 14,034.47 26,578,68 51,260.14 55,317.90 106,578.04 278.25 49.94 328.19 1,304,964.21 1,539,127.40 2,844,091.61 5,360,45 2,680.23 8,040.68 76,373.74 76,373.74 498.10 457.01 955.11 83.40 37.53 120.93 65,887.25 33,972.22 99,859.47 148,202.94 37,146.99 185,349.93 1,453,167.15 1,576,274.39 3,029,441.54 2.52 2.47 4.99 19,304.47 5,830.06 25,134.53 6,805.25 6,737.94 13,543.19

563.38

1.93

1.59

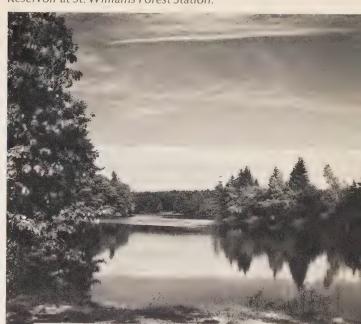
6,033.87

1.93

1.59

5,470.49

Reservoir at St. Williams Forest Station.





Display at International Plowing Match, Guelph, 1968.

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1967-8 (continued)

Species	Pieces	Cords	Feet	Equ in
SAWLOGS (continued)				
	07		83.00	
Oak	3,744,674		20,200,194.27	20,200
	356,155		1,110,798.63	1,110
Pine, red	335,627		1,867,367.63	1,867
Pine, white	823,669		3,948,446.43	3,948
Poplar	3,358,603		16,974,039.45	16,974
Tamarack	152		178.75	
Total	9,208,275		46,739,037.73	46,739
TREE LENGTH MATERIAL				
	741,683		5,713,497.83	5,713
Balsam	4,552		36,938.33	36
Birch, white	31		1,279.50	
Cedar	2,666,782	1	29,757,109.60	29,757
Pine, jack	148		3,198.60	
Pine, red	40		1,783.66	
Pine, white	64,577		1,143,177.44	1,143
Poplar	9,763,422		64,923,365.50	64,92
Spruce	39		202.60	0 // 0 = 1
Total	13,241,274		101,580,553.06	101,580
LONG TIMBER	02		33.12	
Ash	754		1,759.58	
Balsam	23		547.06	
Beech	01		18.44	
Birch, white	1,329		11,282.23	1
Cedar	07		129.56	
Elm	2,352		53,565.57	5
Hemlock	2,332		290.50	
Maple	03		53.02	
Oak	39,172		478,412.48	47
Pine, jack	41,482		707,773.24	70
Pine, red	1,813		11,276.07	1
Poplar	31		564.32	
Poplar	30,296		181,580.38	18
Spruce	153		832.89	
Total	117,433		1,448,118.46	1,44
Total Cubic Foot Measure	22,566,982		149,767,709.25	149,76
Total Capie 1000 measure 111111111111111111111111111111111111				

^{*}Long timber includes dimension and boom timber, poles, and piling.

Dues \$	Bonus \$	Stumpage Value \$
.50	4.48	4.98
474,731.40	116,333.98	591,065.38
36,659.38	38,194.52	74,853.90
61,623.18	63,845.90	125,469.08
23,606.11	31,402.76	55,008.87
560,250.19 2.95	98,002.67 3.70	658,252.86 6.65
2.33		0.03
1,188,459.96	360,921.86	1,549,381.82
94,227.12	16,414.25	110,641.37
221.63	455.79	677.42
21.11	30.07	51.18
699,628.53	71,621.05	771,249.58
105.56	21.76	127.32
58.86 6,859.07	32.15	91.01
2,141,325.28	1,426.08 227,506.54	8,285.15 2,368,831.82
3.34	.71	4.05
2,942,450.50	317,508.40	3,259,958.90
1.32		1.32
55.66	17.98	73.64
27.85	17.50	27.85
.74		.74
320.80	167.47	488.27
5.86		5.86
2,694.03	92.75	2,786.78
13.48	6.73	20.21
2.34 19,702.03	1.06 8,761.48 >	3.40
34,512.58	56,583.53	28,463.51 91,096.11
560.27	303.70	863.97
26.03	303.70	26.03
7,495.89	2,842.74	10,338.63
26.42	25.66	52.08
65,445.30	68,803.10	134,248.40
4,196,355.76	747,233.36	4,943,589.12



Scion of superior spruce tree is grafted on seedling, Ontario Tree Seed Plant, Angus.

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1967-8 (continued)

	Cords	Feet	in
CORDAGE			
PULPWOOD			
Ash	55.41		4
Balsam	86,378.42		7,342
Basswood	14.40		7,542
Beech	7.42		'
Birch, white	35,901.32		3,051
Birch, yellow	687.05		58
Cedar	1,348.58		114
Elm	21.98		1
Hemlock	6,849.54		582
Maple	9,503.33		807
Oak	6.69		007
Pine, jack	609,916.56		51,842
Pine, jack (export levy)	(31,647.42)		(2,690
Pine, red	2,243.42		190
Pine, white	28,164.79		2,394
Poplar	192,042.26	·	16,323
Poplar (export levy)	(6,374.36)		(541
Spruce	1,563,257.87		132,876
Spruce (export levy)		`	(1,539)
Tamarack	(18,115.04)		
Hardwood	1,193.88 3 1 ,556.95		101
Tialdwood	 31,330.93		2,682,
Total	2,569,149.87		218,377,
FUELWOOD			
Hardwood	13,035.54		1,108
Softwood	7,418.05		630
Total	 20,453.59		1,738,
BOLTS			
Birch, white	4,002.58		340.
Pine, jack	1,580.72		134,
Pine, white	203.58		17,
Poplar	55,334.89		4,703,
Spruce	1,041.87		88,
	,		
Total	62,163.64		5,283,
Total Cordage	2,651,767.10		225,400,

Dues \$	Bonus \$	Stumpage Value \$
,	<u> </u>	
27.71	53.74	81.45
120,930.09	29,822.56	150,752.65
7.20	7.20	14.40
3.75 17,951.15	1.88	5.63
343.58	7,916.68 195.16	25,867.83
1,810.55	271.52	538.74
11.00	13.96	2,082.07
9,583.93	556.52	24.96 10,140.45
4,751.82	2,736.96	7,488.78
3.35	7.57	10.92
1,219,717.64	97,606.95	1,317,324.59
.,= ,	15,823.77	15,823.77
3,406.35	1,434.09	4,840.44
39,430.93	3,864.97	43,295.90
96,025.03	44,372.76	140,397.79
	637.43	637.43
4,391,177.45	657,982.60	5,049,160.05
	18,115.04	18,115.04
1,672.56	209.47	1,882.03
15,781.59	11,099.26	26,880.85
5,922,635.68	892,730.09	6,815,365.77
6,517.77 3,709.04	2,933.00	9,450.77
3,709.04	911.14	4,620.18
10,226.81	3,844.14	14,070.95
2,007.37	1,212.40	2 210 77
3,161.44	1,212.40	3,219.77 3,320.80
285.01	133.30	285.01
27,779.22	14,245.01	42,024.23
2,919.27	360.63	3,279.90
36,152.31	15,977.40	52,129.71
5,969,014.80	912,551.63	6,881,566.43



Simcoe County Forest.

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1967-8 (continued)

Species	Pieces	Cords	Feet	Equiva in cu.
MISCELLANEOUS				
POSTS—LIN. FT. Balsam Cedar Spruce Tamarack	80 43,879 24 100		550 344,105 240 600	11 68,82 4 12
MINING TIMBER—CU. FT. Pine, jack Pine, red Spruce Hardwood	677 23 8,447 617		6,916.52 286.45 14,600.41 3,101.66	6,91 28 14,60 3,10
POKER POLES—CORDS Hardwood	55,127	3,164.78		269,00 27,56
Total Miscellaneous Total Board Foot Measure Total Cubic Foot Measure Total Cordage	108,974 4,982,138 22,566,982	3,164.78 2,651,767.10	322,801,999 149,767,709.25	390,57 60,336,82 149,767,70 225,400,20
GRAND TOTAL	27,658,094	2,654,931.88		435,895,30

Number of Districts Cutting Licences issued and included in above: 2,695 Conversion Factors: 1 cubic foot = 5.35 board fee

1 cord

= 85 cubic fee

Dues \$	Bonus \$	Stumpage Value \$
5.50	9.50	15.00
3,441.05	612.82	4,053.87
2.40	2.60	5.00
6.00	6.00	12.00
162.73	11.67	174.40
4.72	9.60	14.32
454.50	339.41	793.91
18.35	23.84	42.19
1,582.40	2,346.89	3,929.29
2,779.20	3.05	2,782.25
8,456.85	3,365.38	11,822.23
1,453,167.15	1,576,274.39	3,029,441.54
4,196,355.76	747,233.36	4,943,589.12
5,969,014.80	912,551.63	6,881,566.43
11,626,994.56	3,239,424.76	14,866,419.32
		\$1,001,360.38



Scaling logs, Sault Ste. Marie Forest District.



BILLIONTH TREE

Premier John Robarts planted a sugar maple sapling in a ceremony at Queen's Park on November 14, 1968. He was assisted by Jim Drury (Left), 16, representing his grandfather, the late Hon. E. C. Drury, Premier of Ontario, 1919-23, and by Ross Zavitz (right of tree), representing his father, the

late Dr. E. J. Zavitz, widely acclaimed as the father of reforestation in Ontario. Hon. Rene Brunelle (Right), Minister of Lands and Forests, presided over the ceremony which marked the production and shipment of one billion forest trees by provincial nurseries.

TIMBER SALES

FROM APRIL 1, 1968, TO MARCH 31, 1969

Date Sold 1968	Locality	Area Sq. M.	No. of Tenders	To whom sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
May 9	Evelyn Township	0.1	7	Alexander M. Ryan	Jack pine pulpwood	4.15	1.35	2.00	7.50 per cord
May 30	Mayo Township	0.2	1	Jan Lumber Company L'Amable, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs Oak saw-logs Cak saw-logs Elm saw-logs Beech saw-logs Hardwood pulpwood	3.30 3.30 2.30 4.00 2.00 4.00 2.00 5.00 2.00 4.00 2.00 2.00 5.00	10.00 10.00 12.00 6.00 5.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 5.00 5.50 0.25	5.00 5.00 4.00 4.00 3.00 5.00 1.50 5.00 5.00 5.00 5.00 5.00 5	18.30 per MBM 18.30 per MBM 18.30 per MBM 14.00 per MBM 10.00 per MBM 12.00 per MBM 18.00 per MBM 12.00 per MBM
June 5	Mayo Township	0.2	2	Clair Lalone R.R. #1 Detlor, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs Oak saw-logs Ash saw-logs Beech saw-logs Hardwood pulpwood	5.00 5.00 5.00 5.00 5.00 5.00 7.00 4.00 5.00 5.00 5.00	10.00 10.00 12.00 6.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 4.50 0.25	5.00 5.00 4.00 4.00 3.00 5.00 1.50 5.00 5.00 5.00 5.00 1.50 0.50	20.00 per MBM 20.00 per MBM 21.00 per MBM 15.00 per MBM 13.00 per MBM 13.00 per MBM 21.00 per MBM 15.00 per MBM 10.00 per MBM 10.00 per MBM 20.00 per MBM 17.00 per MBM 17.00 per MBM 15.00 per MBM 15.00 per MBM 15.00 per MBM 15.00 per MBM
June 10	McClure Township	0.3	1	G. W. Martin Lumber Limited Harcourt, Ontario	White pine saw-logs Spruce saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs	3.00 3.00 2.00 12.00 12.00 1.00 3.00 3.00	10.00 12.00 5.00 11.00 6.50 4.50 8.00 11.00	5.00 4.00 3.00 5.00 1.50 1.50 5.00 5.00	18.00 per MBM 19.00 per MBM 10.00 per MBM 28.00 per MBM 20.00 per MBM 7.00 per MBM 16.00 per MBM 19.00 per MBM

continued . . .

FROM APRIL 1, 1968, TO MARCH 31, 1969

Date Sold 1968	Locality	Area Sq. M.	No. of Tenders	To whom sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
					Ash saw-logs	2.00	5.00	5.00	12.00 per MBM
					Elm saw-logs	1.00	5.00	5.00	11.00 per MBM
					Beech saw-logs	1.00	4.50	1.50	7.00 per MBM
					Balsam pulpwood	0.70	0.60	1.40	2.70 per cord
					Hardwood pulpwood	0.20	0.25	0.50	0.95 per cord
June 17	Cashel	0.3	2	Wesont Lumber	Spruce saw-logs	4.10	12.00	4.00	20.10 per MBN
	Township			Company Limited	Balsam saw-logs	6.00	6.00	4.00	16.00 per MBN
				P.O. Box 89	Cedar saw-logs	2.00	5.00	3.00	10.00 per MBN
				Clifford, Ontario	Hemlock saw-logs	2.00	5.00	3.00	10.00 per MBM
					Yellow birch saw-logs	12.60	11.00	5.00	28.60 per MBM
					White birch saw-logs	10.10	6.50	1.50	18.10 per MBM
					Poplar saw-logs		4.50	1.50	6.00 per MBM
					Maple saw-logs	13.50	8.00	5.00	26.50 per MBM
					Basswood saw-logs	10.00	11.00	5.00	26.00 per MBM
					Oak saw-logs	8.00	7.00	5.00	20.00 per MBM
					Ash saw-logs		5.00	5.00	10.00 per MBM
					Elm saw-logs		5.00	5.00	10.00 per MBM
					Beech saw-logs	2.00	4.50	1.50	8.00 per MBM
					Hardwood pulpwood		0.25	0.50	0.75 per cord
June 17	Bridgland	0.1	3	Jack Hermiston	Spruce saw-logs	4.00	4.00	4.00	12.00 per MBM
	Township			R.R. #3	Hemlock saw-logs	3.00	2.00	3.00	8.00 per MBM
				Iron Bridge, Ontario	Yellow birch saw-logs	46.00	15.00	5.00	66.00 per MBM
					White birch saw-logs	41.00	12.50	1.50	55.00 per MBN
					Maple saw-logs	8.00	5.00	5.00	18.00 per MBM
June 28	Mulock	0.3	2	Ross Lake Lumber	Spruce saw-logs		8.00	4.00	12.00 per MBM
	Township			Limited	Hemlock saw-logs		5.00	3.00	8.00 per MBM
				604 Oakwood Ave.	Yellow birch saw-logs	15.00	15.00	5.00	35.00 per MBM
				North Bay, Ontario	Maple saw-logs	6.00	7.00	5.00	18.00 per MBM
					Oak saw-logs		5.00	5.00	10.00 per MBM
					Ash saw-logs		5.00	5.00	10.00 per MBM
					Elm saw-logs	_	5.00	5.00	10.00 per MBM
					Cherry saw-logs		5.00	5.00	10.00 per MBM
					Spruce pulpwood	_	0.70	2.80	3.50 per cord
					Balsam pulpwood		1.10	1.40	2.50 per cord
					Hemlock pulpwood		0.10	1.40	1.50 per cord
					Yellow birch pulpwood		0.50	0.50	2.00 per cord
					Maple pulpwood	1.00	0.50	0.50	2.00 per cord
					Oak pulpwood		0.50	0.50	1.00 per cord
					Ash pulpwood	_	0.50	0.50	1.00 per cord
					Elm pulpwood		0.50 0.50	0.50	1.00 per cord 1.00 per cord
					Cherry pulpwood	_	0.50	0.50	1.00 per cord
									continued

FROM APRIL 1, 1968, TO MARCH 31, 1969

ate old 968		Locality	Area Sq. M.	No. of Tenders	To whom sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
ily	9	Ashby Township	0.2	1	George Stein Schutt, Ontario	Spruce saw-logs Balsam saw-logs	4.00	12.00	4.00	20.00 per MBM 9.00 per MBM
						Cedar saw-logs Hemlock saw-logs	1.00	6.00	3.00	9.00 per MBM 10.00 per MBM
						Yellow birch saw-logs	5.00	11.00	5.00	21.00 per MBM
						White birch saw-logs	5.00	5.50	1.50	7.00 per MBM
						Poplar saw-logs		4.50	1.50	6.00 per MBM
						Maple saw-logs	5.00	9.00	5.00	19.00 per MBM
						Basswood saw-logs	4.00	11.00	5.00	20.00 per MBM
						Oak saw-logs		5.00	5.00	10.00 per MBM
						Ash saw-logs		4.00	5.00	9.00 per MBM
						Beech saw-logs	_	6.50	1.50	8.00 per MBM
ıly	12	Foster and	0.7	2	L. Vincent Burns	White pine saw-logs	0.03	0.027	0.033	0.09 per cu. ft.
,		Curtin			Box 222	Red pine saw-logs	0.02	0.047	0.033	0.10 per cu. ft.
		Townships			Massey, Ontario	Spruce saw-logs	0.02	0.047	0.033	0.10 per cu. ft.
		·				Spruce pulpwood	0.70	0.50	2.80	4.00 per cord
						Balsam pulpwood	1.00	1.60	1.40	4.00 per cord
						White pine pulpwood	1.00	1.60	1.40	4.00 per cord
						Red pine pulpwood	1.00	1.60	1.40	4.00 per cord
						White birch pulpwood	0.50	0.50	0.50	1.50 per cord
						Poplar pulpwood	0.50	0.50	0.50	1.50 per cord
ept.	6	McCowan	1.2	8	Alfred Isabelle	Spruce pulpwood	2.87	0.85	2.80	6.52 per cord
		Township			Box 119 Opasatika, Ontario	Poplar of veneer quality	1.77	1.25	0.50	3.52 per cord
ept.	12	Nansen	2.0	1	Rosaire Bouchard	Spruce pulpwood	0.01	0.60	2.80	3.41 per cord
		Township			R.R. #1 Moonbeam, Ontario	Balsam pulpwood	0.01	2.00	1.40	3.41 per cord
lov.	8	Mulock	0.2	2	Earl Winch	Spruce saw-logs	2.00	8.00	4.00	14.00 per MBM
		Township			'R.R. #1	Hemlock saw-logs	0.10	5.00	3.00	8.10 per MBM
					Redbridge, Ontario	Yellow birch saw-logs	15.00	15.00	5.00	35.00 per MBM
						Maple saw-logs	5.00	7.00	5.00	17.00 per MBM
						Oak saw-logs	5.00	5.00	5.00	15.00 per MBM
						Ash saw-logs	2.00	5.00	5.00	12.00 per MBM
						Elm saw-logs	5.00	5.00	5.00	15.00 per MBM
						Cherry saw-logs	5.00	5.00 0.70	5.00 2.80	15.00 per MBM 3.60 per cord
						Spruce pulpwood	0.10	0.70	1.40	2.55 per cord
						Balsam pulpwood Hemlock pulpwood	0.05	0.10	1.40	1.55 per cord
						Yellow birch pulpwood	0.05	0.10	0.50	1.05 per cord
						renow biren pulpwood	0.03	0.50	0.50	
										continued

continued . . .

FROM APRIL 1, 1968, TO MARCH 31, 1969

Date Sold 1968	Locality	Area Sq. M.	No. of Tenders	To whom sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
					Maple pulpwood	0.05	0.50	0.50	1.05 per cord
					Oak pulpwood	0.05	0.50	0.50	1.05 per cord
					Ash pulpwood	0.05	0.50	0.50	1.05 per cord
					Elm pulpwood	0.05	0.50	0.50	1.05 per cord
					Cherry pulpwood	0.05	0.50	0.50	1.05 per cord
Nov. 22	Freeman	0.9	3	Bert Taylor	White pine saw-logs	1.79	9.96	5.00	16.75 per MBN
	Township			Construction Ltd.	Spruce saw-logs	1.50	6.00	4.00	11.50 per MBN
	·			P.O. Box 103	Cedar saw-logs	1.23	1.77	3.00	6.00 per MBN
				Parry Sound, Ontario	Hemlock saw-logs	1.01	1.99	3.00	6.00 per MBN
					Yellow birch saw-logs	21.18	22.32	5.00	48.50 per MBN
					White birch saw-logs	5.20	1.30	1.50	8.00 per MBM
					Maple saw-logs	13.79	7.71	5.00	26.50 per MBN
					Oak saw-logs	4.84	3.16	5.00	13.00 per MBM
					Ash saw-logs	1.89	3.11	5.00	10.00 per MBM
					Elm saw-logs	2.19	2.81	5.00	.10.00 per MBM
					Cherry saw-logs	4.00	1.00	5.00	10.00 per MBN
					Beech saw-logs	4.49	0.01	1.50	6.00 per MBM
Dec. 9	Ashby	0.1	2	George Stein	White pine saw-logs	5.00	10.00	5.00	20.00 per MBM
	Township			Schutt, Ontario	Balsam saw-logs	5.00	6.00	4.00	15.00 per MBN
					Hemlock saw-logs	5.00	5.00	3.00	13.00 per MBM
					Yellow birch saw-logs	9.00	11.00	5.00	25.00 per MBM
					White birch saw-logs	4.00	6.50	1.50	12.00 per MBN
					Maple saw-logs	9.00	8.00	5.00	22.00 per MBN
					Basswood saw-logs	4.00	11.00	5.00	20.00 per MBN
					Oak saw-logs	5.00	7.00	5.00	17.00 per MBN
					Beech saw-logs	4.00	4.50	1.50	10.00 per MBN
					Hardwood pulpwood		0.25	0.50	0.75 per cord
Dec. 23	Ashby	0.1	4	Wesont Lumber	White pine saw-logs	9.00	10.00	5.00	24.00 per MBN
	Township			Company, Ltd.	Spruce saw-logs	8.00	12.00	4.00	24.00 per MBN
				P.O. Box 89	Balsam saw-logs	2.00	6.00	4.00	12.00 per MBN
				Clifford, Ontario	Cedar saw-logs		5.00	3.00	8.00 per MBN
					Hemlock saw-logs	4.00	5.00	3.00	12.00 per MBN
					Yellow birch saw-logs	14.00	11.00	5.00	30.00 per MBN
					Maple saw-logs	17.00	8.00	5.00	30.00 per MBN
					Basswood saw-logs	10.00	11.00	5.00	26.00 per MBN
					Oak saw-logs	8.00	7.00	5.00	20.00 per MBN
					Ash saw-logs	2.00	5.00	5.00	12.00 per MBN
					Elm saw-logs	2.00	5.00	5.00	12.00 per MBN
					Beech saw-logs	2.00	4.50	1.50	8.00 per MBM
					Hardwood pulpwood		0.25	0.50	0.75 per cord
									continued

continued . .

FROM APRIL 1, 1968, TO MARCH 31, 1969

ate old 969		Locality	Area Sq. M.	No. of Tenders	To whom sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
an.	17	Gould	0.2	5	Leonard N. Smith	White pine saw-logs	1.00	10.00	5.00	16.00 per MBM
		Township			R.R. #2	Spruce saw-logs	2.00	8.00	4.00	14.00 per MBM
					Thessalon, Ontario	Hemlock saw-logs	1.00	4.00	3.00	8.00 per MBM
						Yellow birch saw-logs	37.00	20.00	5.00	62.00 per MBM
						Maple saw-logs	9.00	7.00	5.00	21.00 per MBM
n.	10	Griffith	1.8	6	Wallace Weichenthal	White pine saw-logs	9.00	10.00	5.00	24.00 per MBM
	10	Township			Hardwood Lake,	Red pine saw-logs	6.00	10.00	5.00	21.00 per MBM
101113111			Ontario	Spruce saw-logs	5.00	12.00	4.00	21.00 per MBM		
						Balsam saw-logs	6.00	6.00	4.00	16.00 per MBM
						Cedar saw-logs	7.00	5.00	3.00	15.00 per MBM
						Hemlock saw-logs	3.00	5.00	3.00	11.00 per MBM
						Yellow birch saw-logs	10.00	11.00	5.00	26.00 per MBM
						White birch saw-logs	10.00	6.50	1.50	18.00 per MBM
						Poplar saw-logs	5.25	4.50	1.50	11.25 per MBM
						Maple saw-logs	6.00	8.00	5.00	19.00 per MBM
						Basswood saw-logs	6.00	11.00	5.00	22.00 per MBN
						Oak saw-logs	5.00	7.00	5.00	17.00 per MBM
						Ash saw-logs	5.00	5.00	5.00	15.00 per MBM
						Elm saw-logs	6.00	5.00	5.00	16.00 per MBM
						Beech saw-logs	6.00	4.50	1.50	12.00 per MBM
						Balsam pulpwood	0.25	0.60	1.40	2.25 per cord
						White pine pulpwood	0.25	0.10	1.40	1.75 per cord
						Red pine pulpwood	0.25	0.10	1.40	1.75 per cord
						Hemlock pulpwood	0.10	0.10	1.40	1.60 per cord
						Hardwood pulpwood	0.50	0.25	0.50	1.25 per cord

CROWN TIMBER LICENCES, 1968-9

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transacti
April 4/68	Leonard A. Wilson 159 Faren Street, New Liskeard, Ontario	Gamble Township	1968	New
April 4/68	Walter Tuzyk Red Lake, Ontario	Unsurveyed Territory Kenora District	1970	New
May 2/68	O. E. Rothwell Lumber Company Limited Lanark, Ontario	South Canonto Township	1971	Re-issue
May 2/68	Sioux Lookout Forest Products Limited Sioux Lookout, Ontario	Unsurveyed Territory Kenora District	1970	Re-issue
May 2/68	The Great Lakes Paper Company, Limited P.O. Box 430, Fort William, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
May 2/68	Abitibi Paper Company Ltd. Toronto-Dominion Centre, Toronto 1, Ontario	Unsurveyed Territory Thunder Bay District	1989	New
May 16/68	J. E. Martel and Sons Lumber Limited Box 488, Chapleau, Ontario	Lipsett Township	1969	New
May 23/68	Abitibi Paper Company Ltd. Toronto Dominion Centre, Toronto 1, Ontario	Goodfellow and Fallis Townships	1969	New
May 30/68	Buchanan Brothers (Ontario) Limited Red Rock, Ontario	Innes, Graydon and Adamson Townships, etc.	1969	New
June 20/68	J. H. Normick Ltee. Box 2500, La Sarre, Quebec	Marriott, Stoughton and Frecheville Townships	1969	New
June 20/68	Weldwood of Canada Limited Box 247, Islington, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
June 20/68	Malette Lumber Limited P.O. Box 91, Timmins, Ontario	Massey and Cote Townships	1969	New
June 20/68	Henry Selin Forest Products Limited Hearst, Ontario	McFarlan Township	1969	New
June 20/68	Henry Swanson Box 1290, Cochrane, Ontario	Beniah Township	1969	New
June 20/68	Maurice Ouellette Box 1183, Dryden, Ontario	Unsurveyed Territory Kenora District	1969	New
July 4/68	Joseph Kirouac Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1969	New
July 4/68	William MacBrien Mattawa, Ontario	Lauder Township	1971	Re-issue
July 4/68	Rene Ross Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1969	New
	The state of the s	Non-Reported		

SSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transaction
	J. H. Normick Ltee. Box 2500, La Sarre, Quebec	Abbotsford Township	1969	New
uly 4/68	J. H. Normick Ltee. Box 2500, La Sarre, Quebec	Sargeant and Berry Townships	1969	New
	Bruce Campbell Quibel, Ontario	Unsurveyed Territory Kenora District	1969	New
	Leonard Jones Red Lake Road, Ontario	Unsurveyed Territory Kenora, Ontario	1969	New
uly 4/68	Sawyer-Stoll Lumber Company of Canada Limited, Kaladar, Ontario	Anglesea Township	1971	New
uly 4/68	Bay Lumber Limited Westree, Ontario	Leonard Township	1970	New
uly 4/68	Gerard LeBlanc 53 McKelvie Avenue, Kirkland Lake, Ontario	Davidson and Smyth Townships	1969	New
uly 11/68	Northern Forest Products Limited Box 990, Port Arthur, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
luly 11/68	McIntyre-Porcupine Mines Limited Schumacher, Ontario	Sewell Township	1974	Re-issue
July 18/68	G. A. Querel Vermilion Bay, Ontario	Unsurveyed Territory Kenora District	1969	New
July 18/68	Abitibi Paper Company, Ltd. Toronto Dominion Centre, Toronto 1, Ontario	Unsurveyed Territory Thunder Bay District	1989	New
July 18/68	Pembroke Lumber Company Limited Pembroke, Ontario	Edgar Township	1972	Re-issue
July 18/68	William Stewart Murray Flanders, Ontario	Bennett Township	1970	Re-issue
July 18/68	Northern Forest Products Limited Box 990, Port Arthur, Ontario	Unsurveyed Territory Geraldton District	1969	New
August 1/68	Weyerhaeuser Canada Limited Box 179, Richmond Hill, Ontario	Papineau Boyd, Lister Townships, etc.	1977	Re-issue
August 1/68	Trilake Timber Company Limited Box 361, Kenora, Ontario	Unsurveyed Territory Kenora District	1969	New
August 8/68	Whitman Lumber Company Limited North Bay, Ontario	Lockhart Township	1971	Re-issue
August 15/6	8 Chapleau Lumber Company Limited Chapleau, Ontario	Ramsden and Buckland Townships	1969	Re-issue

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transactio
August 15/68	Feldman Timber (Matheson) Limited P.O. Box 440, Timmins, Ontario	Garrison and Harker Townships	1969	New
August 22/68	Northern Forest Products Limited Box 990, Port Arthur, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
August 22/68	Freymond Lumber Limited R.R.#2, Bancroft, Ontario	Dungannon and Mayo Townships	1973	New
September 12/68	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Bronson Township	1971	New
September 12/68	Elof Christianson Mattice, Ontario	Sankey Township	1971	New
September 12/68	James Gibson and Sons Limited P.O. Box 734, North Bay, Ontario	Phelps Township	1969	Re-issue
September 12/68	Pearson Forest Products Limited Box 219, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1970	Re-issue
September 12/68	Vic Pearson and Sons Limited Box 113, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1970	Re-issue
September 12/68	A. & L. Lafreniere Lumber Limited Chapleau, Ontario	Racine Township	1969	Re-issue
September 12/68	Roger Fryer Monetville, Ontario	Attlee Township	1971	New
September 26/68	Maurice Lecours Box 1000, Hearst, Ontario	Bannerman Township	1969	New
September 26/68		Henry Township	1970	New
September 26/68	Sawyer-Stoll Lumber Company of Canada Limited, Kaladar, Ontario	Miller Township	1971	Re-issue
September 26/68	Crystal Falls Enterprises Limited Crystal Falls, Ontario	Grant Township	1971	New
October 3/68	Multiply Plywoods Limited Nipigon, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
October 10/68	Abitibi Paper Company Ltd. Toronto Dominion Centre, Toronto 1, Ontario	Aubin, Nesbitt and Crawford Townships, etc.	1978	Re-issue
October 10/68	Kormak Lumber Company Limited 6 Dufferin Street, Sudbury, Ontario	Township 11E	1971	New
October 17/68	The Great Lakes Paper Company P.O. Box 430, Fort William, Ontario	Unsurveyed Territory Thunder Bay District	1969	New

continued . .

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transaction
October 31/68	Chantier Co-Operative de Barker Richard Renault	Barker Township	1969	New
October 31/68	Kenneth McDougall Red Lake, Ontario	Heyson Township	1970	Re-issue
October 31/68	La Societe Co-Operative de Mattice Mattice, Ontario	McCrea Township	1969	New
October 31/68	Meadowside Lumber Limited 1230 Fraser Street, North Bay, Ontario	Charlton and Blyth Townships	1970	New
November 7/68	H. D. Fryer Monetville, Ontario	Falconer Township	1969	New
November 7/68	Isidore Roy 175 Front Street, Sturgeon Falls, Ontario	Davis Township	1969	Re-issue
November 7/68	Murray Bros. Lumber Co. Ltd. Barry's Bay, Ontario	Dickson and Niven Townships	1971	New
November 14/68	Albert J. Griffiths R.R. #1, Kenora, Ontario	Rudd Township	1971	New
November 14/68	Camille Ducharme Mattawa, Ontario	Papineau Township	1973	New
November 28/68	Romeo Lafreniere Mattawa, Ontario	Fairbank Township	1971	New
November 28/68	Biglow Lumber (1966) Limited Devon, Ontario	Borden, Chewett and Gamey Townships	1973	Re-issue
November 28/68	Cochrane Enterprises Limited Cochrane, Ontario	Laughton and Heighington Townships	1969	New
December 5/68	Buchanan Brothers (Ontario) Limited Red Rock, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
December 12/68	Rene Fabris Box 327, Elliot Lake, Ontario	Township 143	1971	New
December 12/68	Kakabeka Timber Limited Box 35, Port Arthur, Ontario	Lismore Township	1971	New
December 12/68	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald and Deacon Townships	1971	Re-issue
December 12/68	L. Vincent Burns Box 222, Massey, Ontario	Tennyson Township	1969	New
December 12/68	Henry Kutzler R.R. #1, Kakabeka Falls, Ontario	Adrian Township	1973	New

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transaction
December 19/68	J. F. Thomson Timber Limited Ruttan Block, Port Arthur, Ontario	Soper Township	1971	Re-issue
January 2/69	G. K. Stringer Limited 251 Moore Street, South Porcupine, Ontario	Eldorado Township	1973	Re-issue
January 2/69	The Morrison Brothers Limited Marten River, Ontario	Olive, Sisk and Law Townships, etc.	1971	Re-issue
January 2/69	Asam Brothers R.R. #1, Rydal Bank, Ontario	Aberdeen Township	1971	Re-issue
January 2/69	Vernon Armstrong 724 First Street West, Fort Frances, Ontario	Griesinger Township	1970	Re-issue
January 2/69	M. J. Umpherson Clyde Forks, Ontario	Lavant Township	1971	Re-issue
January 2/69	Odorizzi Lumber Company Golden Valley, Ontario	Patterson Township	1972	Re-issue
January 2/69	A. E. Jacobson Lumber Company 223 South Hill Street, Port Arthur, Ontario	Haines Township	1971	Re-issue
January 2/69	Weldwood of Canada Limited P.O. Box 247, Islington, Ontario	Law Township	1971	Re-issue
January 2/69	Firesteel Contractors Limited P.O. Box 1194, Port Arthur, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
January 2/69	Paul Csuzdi 925 Kildonan Drive, E·K., Winnipeg 15, Manitoba	Pelican and Umbach Townships	1971	New
January 9/69	Island Lake Lumber Company P.O. Box 310, Chapleau, Ontario	Township 12H	1971	Re-issue
January 9/69	Nym Lake Timber Company Roadside Lodge, Atikokan, Ontario	Unsurveyed Territory Rainy River District	1970	Re-issue
January 9/69	James Gibson and Sons Limited P.O. Box 734, North Bay, Ontario	Stewart, Merrick and Mulock Townships	1969	New
January 9/69	Benoit D'Amours R.R. #1, Moonbeam, Ontario	Nansen Township	1969	New
January 9/69	Jack Finch Emo, Ontario	Unsurveyed Territory Rainy River District	1970	Re-issue
January 9/69	Richard Renault Dorion, Ontario	Dorion Township	1973	New
January 16/69	Vic Pearson and Sons Limited Box 113, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1970	Re-issue

SSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transaction
anuary 16/69	Meadowside Lumber Limited 1230 Fraser Street, North Bay, Ontario	· · · · · · · · · · · · · · · · · · ·		New
anuary 16/69	Rathwell Lumber Limited Dryden, Ontario	Unsurveyed Territory Kenora District	1970	Re-issue
anuary 16/69	Amo Corporation Box 40, Kenora, Ontario	Unsurveyed Territory Kenora District	1971	New
anuary 16/69	A. Lecours and Sons Limited Hearst, Ontario	Fushimi and Rogers Township	1971	Re-issue
anuary 16/69	Grant and Wilson Swastika, Ontario	Black Township	1971	Re-issue
anuary 16/69	John W. Fogg Limited Allanburg Road, Thorold, Ontario	Pinard, Parliament and Avon Townships	1977	Re-issue
lanuary 16/69	Romeo Richer Box 142, Markstay, Ontario	Hawley Township	1970	Re-issue
January 16/69	A. E. Wicks Limited Allanburg Road, Thorold, Ontario	Bartlett, Beemer and English Townships, etc.	1977	Re-issue
January 16/69	A. E. Wicks Limited Allanburg Road, Thorold, Ontario	Beniah, Thorning and Blount Townships, etc.	1977	Re-issue
January 16/69	John W. Fogg Limited Allanburg Road, Thorold, Ontario	Douglas, Fallon, Fasken Townships, etc.	1977	Re-issue
January 23/69	A. G. Wilson Boulter, Ontario	Townships 151, 157 and 163	1969	New
January 23/69	Boreal Timber Limited Box 627, Port Arthur, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
January 23/69	Ken Dooley Bulldozing P.O. Box 245, Schreiber, Ontario	Unsurveyed Territory Thunder Bay District	1969	New
January 23/69	Lecours Lumber Company Calstock, Ontario	Unsurveyed Territory Cochrane, Ontario	1971	New
January 30/69	Feldman Timber Company Limited Timmins, Ontario	Carscallen Township	1969	New
January 30/69	Rino Baldi Dorion, Ontario	Forbes Township	1971	New
January 30/69	The Frawley Lake Lumber Company Box 83, Callander, Ontario	Flett Township	1969	Re-issue
February 6/69	E. R. De Gagne R.R. #2, Kenora, Ontario	Unsurveyed Territory Kenora District	1971	New
				continued

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry Date	Type of Transaction
February 6/69	Rathwell Lumber Limited Dryden, Ontario	Unsurveyed Territory Kenora District	1971	New
February 13/69	Ahola Brothers Box 100, Kearney, Ontario .	Bethune Township	1973	New
February 27/69	Kokotow Lumber Limited 5 McCamus Avenue, Kirkland Lake, Ontario	Gross Township	1969	New
February 27/69	Sawyer-Stoll Lumber Company of Canada Limited Kaladar, Ontario	Effingham Township	1973	New
February 27/69	Clouthier Brothers Limited Strickland, Ontario	Alexandra Township	1970	New
February 27/69	Jesse Georgeson 504 Webster Avenue, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1971	New
February 27/69	Wilfred Paiement Earlton, Ontario	Burt Township	1969	New
February 27/69	Grant Lumber Company Limited Sixth Street, Elk Lake, Ontario	Dunmore Township	1969	New
March 6/69	B. & C. Timber Company Spanish, Ontario	Nairn Township	1970	New
March 6/69	B. & C. Timber Company Limited Spanish, Ontario	Shedden and Deagle Townships	1970	New
March 20/69	Edward Wunsch Box 514, Mattawa, Ontario	Papineau Township	1971	New
March 20/69	Ankney and Franklin Contracting Limited Savant Lake, Ontario	Conant and Boucher Townships	1969	New

IUAL REPORT OF THE MINISTER OF LANDS AND FORESTS OF THE PROVINCE OF ONTARIO FOR THE FISCAL YEAR ENDING MARCH 31, 1970.



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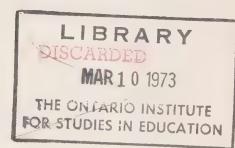
Toronto, Canada



NUAL REPORT OF THE MINISTER OF LANDS AND FORESTS OF THE PROVINCE OF ONTARIO FOR THE FISCAL YEAR ENDING MARCH 31, 1970.



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TO HIS HONOUR. The Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR

The undersigned begs respectfully to present to your Honour, the Annual Report of the Department of Lands and Forests for the fiscal year beginning April 1st, 1969, and ending March 31, 1970.

Reno Brimelle

RENE BRUNELLE Minister

MENT OF AND FORESTS



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FOREWORD

The Annual Report of the Minister is a review of the activities of the Ontario Department of Lands and Forests during the latest fiscal year completed. For both the present term and preceding years, additional detail is reported in "Statistics, 1971" which is released concurrently.

As this volume takes the form of a collection of annual reports by the Department's numerous subdivisions, it seems pertinent to note that these represent the considerable variety of the Department's responsibilities and the many duties discharged with the same over-all aim. This common aim is summarized in the Department's goal statement:

To provide from Crown lands and waters, and to encourage on private lands and waters, a continuing combination of renewable resource production and outdoor recreation opportunities most consistent with the social and economic well-being of the people of Ontario.

Renewable resource production refers to the production of plants and animals for industrial or commercial purposes. General examples are timber, fur and the commercial catch of fish. Agricultural production is not included.

Outdoor recreation opportunities refers to all recreational pursuits commonly associated with the natural environment and commonly believed to contribute to the physical health and mental well-being of the people who enjoy them. In keeping with the Department's aim, the term is interpreted broadly to include cultural activities concerned with the understanding of natural history and the Ontario environment. The opportunities include sport, relaxation, observation and study.

Combination refers to the multiple use of renewable, natural resources. The concept of multiple use, or integrated resource management, is basic. The demand for a wide variety of goods and services is increasing each year, but our land and water resources are limited. As the single-use concept becomes increasingly difficult, the Department's aim is to manage more and more areas for a number of uses.

Continuing refers to the concept of stewardship for future generations. It implies the custody and long-range management of renewable, natural resources for the benefit of Ontario's people in the future. It also implies the Department's deep interest in the principles of ecology and their application in the management of the natural environment.

It is believed that the following pages should be considered in relation to the Department's objectives which have developed from the effort to achieve the over-all goal. At the present time, the Department's specific objectives may be summarized as follows:

RESOURCE ECONOMIC DEVELOPMENT

—To provide from Crown lands and waters, and to encourage on private lands and waters, the optimum, continuing contribution of renewable-resource production industries to the economy of Ontario and its communities.

OUTDOOR RECREATION

- —To provide opportunities for a wide variety of outdoorrecreation experiences for all the people of Ontario on a day-use basis.
- —To provide opportunities for a wide variety of outdoorrecreation experiences on an economically sound scale for the people of Ontario on an over-night or extendeduse basis.
- —To provide continuing outdoor-recreation opportunities for tourism to benefit the economy of Ontario and its communities.

ORGANIZATION



EXECUTIVE ASSISTANT R. L. Kertson



DEPUTY MINISTER G. H. U. BAYLY

CHIEFS OF HEAD OFFICE BRANCHES



ACCOUNTS R. R. MacBean



FISH AND WILDLIFE

Dr. C. H. D. Clarke W. T. Foster



FOREST PROTECTION



SURVEYS





LAW G. H. Ferguson



OPERATIONS G. A. Hamilton



PARKS P. Addison



PERSONNEL



RESEARCH



J. M. Taylor Dr. W. R. Henson A. J. Her

R. G. Code

ASSISTANT DEPUTY MINISTER

R. D. K. Acheson



NORTHWESTERN REGION **REGIONAL DIRECTOR** PORT ARTHUR L. Ringham



NORTHEASTERN REGION **REGIONAL DIRECTOR** SUDBURY J. W. Lockwood



SOUTHERN REGION REGIONAL DIRECTOR MAPLE J. W. Giles

FISH AND WILDLIFE BRANCH



Nater and wildlife, symbolic of the natural environment of Ontario. Photo by D. W. Simkin.

rish and Wildlife Branch is divided into two sections and heir subordinate units with duties and responsibilities as ollows.

WILDLIFE

- Game Management: Maintenance and increase of game bundance through improvement of habitat, regulations, nventory of game numbers, measure of participation by funters, establishment of public hunting areas; and deelopment of agreement with landowners to provide improved game habitat and hunting opportunities.
- Fur Management: Biologically sound management of furearing animals; counselling of trappers to assist them in chieving the highest economic returns for their furs; reguations; stocking of animals in depleted areas; and licensing fur farms.

• Field Services: Enforcement of the hunting and fishing regulations; development of training programs for conservation officers related to law enforcement; development of programs to secure the co-operation of the public in observing regulations; and conduct of hunter examinations.

FISHERIES

- Sport Fisheries and Hatcheries: Planning, co-ordinating and stimulating programs to maintain, develop and expand the Province's sport fisheries through habitat improvement, regulations, inventory of fish populations, measurement of angler activity and angler harvests, development of provincial fishing areas, providing information, production of hatchery stock and assessment of its effectiveness, distribution of fish, and stimulation of commercial hatchery and private fish pond development.
- Commercial Fisheries: Planning and co-ordinating programs based on sound biologic, social and economic bases for the optimum commercial utilization of the Province's fishery resources; issuing licences; collection of statistics (both biologic and economic) on commercial harvests of fish; regulation of harvest through seasons, quotas, gear restrictions and other means; and the development of programs to assist and stimulate industry in catching, processing, handling and marketing of fish.
- Fisheries Inventory: Inventory of the waters of the Province; organization and co-ordination of the field programs; and implementation of data processing systems to utilize inventory information for biologic, economic and other uses.
- Indian Resource Development: Administration and coordination of resource program of fisheries, wildlife, forestry, recreation, etc., under the Federal-Provincial Resource Development Agreement; and development of programs for Indian use of resources.

WILDLIFE SECTION

DEER HUNTING AND MANAGEMENT

The deer management program in Ontario aims at providing recreation opportunities through hunting and viewing deer. Obviously we would like to provide as many opportunities as possible by maintaining and increasing deer numbers to the maximum levels which are consistent with other forest uses. Since the shortage of good winter range is the factor controlling deer numbers in Ontario, we direct our major efforts toward the management of that range, to improve the condition of existing winter deer range, and ultimately to produce more good winter range.

Providing the opportunities for recreation will not ensure that people use them. Often, other factors such as the weather interfere. This was the case with deer hunting in 1969. As in 1968, very adverse weather continued to frustrate the hunters. Frequent rain, accompanied at times by fog, helped the deer, and only on the last day or two was there enough snow for tracking.

It appeared that deer were still widely scattered over their summer range. Hunters who had done poorly in recent years in northern Parry Sound and Pembroke Forest Districts fared a little better this year. Other hunters, who usually have good hunts near deer yards, this year did poorly. It may have been that the summer distribution of deer fooled a few hunters too. Many hunters saw reasonably plentiful signs of deer but were unable to locate them. Throughout the deer range, percentages of fawns and yearlings were high. There was no indication of unusually heavy mortality. With good reproduction and light hunting, there is reason to hope for more deer next year.

For a second year, a mailed deer hunter survey was conducted by the Central Licence Bureau. All results from the computer-addressed questionnaires have not been compiled. However, preliminary results show a slight decrease in over-all hunter success percent.

In Pembroke District, hunter success declined slightly to 13.1% from 14.5% in 1968. It was also down in Kemptville District. In Tweed District, it was just about the same, 15.0% in 1969 compared with 15.8% in 1968. In Lindsay District, there was a slightly higher hunter success of 14.5% compared with 13.4% in 1968. Parry Sound had a rather lower success, 20.7% in 1969 compared with 22.4% in 1968.

Farther north, the story was much the same. About a third less deer were checked at Sault Ste. Marie than in

1968. On the Sudbury District mainland, more hunters were around, but the few deer resulted in even lower succe than in 1968. At North Bay, the 8.1% success was about normal for recent years. There were fewer hunters and mossigns of deer reported.

The hunt on the Bruce Peninsula was about the same in recent years, the 10.5% success being nearly identic with that of the last two years.

On Manitoulin Island, hunters passing the Little Currer checking station during the 1969 deer season were almo exactly as successful as those in 1968 (22.2% with deer in 1969, 22.8% in 1968). Similarly, the number of days required for a hunter to kill a deer was 19.5 in 1969 compare with 18.7 in 1968. But there were fewer hunters and, there fore, fewer deer taken. The number of hunters decrease to 3,417 in 1969 from 3,776 in 1968, and the number of deer taken declined to 757 in 1969 from 860 in 1968. Dawson and Robinson Townships, hunter success was 24.8%, a little above the average for Manitoulin. These two townships provided 53.9% of the deer kill recorded for the entire island.

DEER RANGE MANAGEMENT

To improve the condition of existing deer range, it is necesary to provide enough high-quality food near available evergreen shelter to support present populations of dethrough the critical winter season. The best deer range in cludes brush and young hardwoods for food, intersperse with patches of older evergreen trees for shelter. This a rangement can be brought about by introducing loggin operations near conifer stands already used for shelter the deer, and leaving the evergreen trees standing. Thut the Department encourages such operations in deer wintering areas. However, in many places there are not enough merchantable hardwood trees for such operations. In the places, the Department hires men to cut non-merchantable trees. Such cutting produces food by the sprouting of coppice growth from the stumps.

During the past winter, snow conditions became sever about the 1st of February, and emergency relief measure replaced some routine cutting operations. This meant maing trails with tractors and snowmobiles from sheltere areas, where deer had gathered, to places where food we abundant. The cutting of hardwoods, carried out to stimulate the regrowth of more food for deer along main travitrails, was timed to supply immediate food from tree tops well. Because of the emergency work, the annual cut under this program was reduced from about 3,000 acres during the past two years to about 2,000 acres in 1969.

To produce additional winter range, it will be necessary to provide new areas with adequate evergreen shelter, since deer will not stay in an area during winter unless this shelter is available. Some new yards might be created by cutting for food near shelter which is not now being used, but it is mostly a matter of new shelter required. The quickest way to get it is to find areas where small evergreen trees have been suppressed by larger hardwoods and cut some of the latter. Two release cuts of this kind were carried out during the year, one in Parry Sound Forest District and one in Tweed Forest District.

Where no such advanced growth is present, we must start with even smaller evergreens. A trial planting of 1,000 hemlock seedlings was initiated in Parry Sound District in 1969, and so far the results are encouraging. In Pembroke District a new effort at combining deer range management and timber production resulted in a planting of 100,000 white spruce seedlings. Some smaller plantings of white pine were tried in North Bay District. Although these species do not provide as good deer shelter as hemlock, they are used to some extent by deer and thus provide the opportunity for dual purpose programs.

Woodland caribou, a sensitive ecological indicator, with a population estimated at 15,000 in the northern quarter of Ontario. As from prehistoric times, a small proportion are harvested annually for much needed food and fibre by Indians in remote settlements. Photo by D. W. Simkin.



BROWSE PRODUCTION (acres), 1969-70 Forest District

	Net Area Treated	Winter Range Affected
Sault Ste. Marie	123	2,700
Sudbury	150	33,100
North Bay	333	15,200
Parry Sound	287	6,100
Pembroke	482	55,600
Lindsay	288	8,400
Tweed	346	500
Lake Simcoe	12	2,500
Lake Huron	105	17,300
TOTAL	2,126	141,400

MOOSE HUNTING AND MANAGEMENT

The purpose of moose management in Ontario is to provide recreational opportunities and economic benefits from this resource. Although many people enjoy looking at moose, especially during summer, our major benefits are derived from the recreation and monetary returns generated by the hunting season.

The annual mailed survey of moose hunters was again conducted with the assistance of an electronic computer. If the questionnaires were not returned by the hunters, reminder notices were automatically sent out, and the results of the survey are in process of being analysed.

Moose hunting was alternately poor and good during October according to preliminary reports. More hunters were around than in 1968, and there were plenty of moose available for the hunters, but unfortunately, the weather affected the hunt adversely. Where weather was favourable, hunters had good success, but where rain set in, fewer moose were taken.

In many areas, the first week was very rainy, discouraging hunters from going afield and making hunting difficult. Then the weather cleared and hunters, flocking to take advantage of the improved weather, were well rewarded with moose. The rain came on again during the third week, and again relatively few moose were taken. Following freeze-up, some better hunting occurred during the remainder of the month.

In Kenora and Sioux Lookout Forest Districts, hunting conditions were exceptionally bad during the first week due to four weeks of rain before the season. Water was

very high and many back roads were impassable. Yet, by the end of the month, nearly 500 moose had been examined on the Red Lake Road, giving 37% success compared with 32% in 1968. An earlier comparison showed 385 moose removed from the Red Lake Road in 1969 during a period when only 343 were checked in 1968.

Nearly a thousand moose were taken across the border at International Falls and another 700 at Pigeon River by non-resident hunters. This latter figure was below the number exported in 1968 but above that of 1967. Apparently the poor weather discouraged many hunters who left early, for 80 fewer moose were exported during the third week of the season than in the same period of 1968. On the Black Sturgeon Road, hunters were up to 2,014 in 1969 from 1,936 in the previous year, and moose were down to 197 in 1969 from 237 in 1968.

Unlike northwestern Ontario, water was relatively low in the northeast and weather was reasonably good during the first week.

In Geraldton District, the harvest of moose was up slightly, and the number of hunters up more. This was also true in Kapuskasing, Chapleau and White River Districts. At the Shabotik Road in the latter District, 59 moose were checked compared with 45 in 1968. Hunters were also more numerous, comprising 1,200 in 1969 as compared with 1,010 in 1968.

This good hunting was also reported from Cochrane District and the Englehart area of Swastika District. But in the remainder of Swastika District, southward toward North Bay and across to Sault Ste. Marie, unfavourable weather again interfered with the hunting.

Many residents compensated for the slow start by returning to the hunt after snow on the ground became a helping factor. Conditions were good for power toboggans, and the late season success was better than usual.

Although reliable facts concerning hunting and numbers of moose are of utmost importance in managing our moose herds, the long term welfare of the moose depends largely on the condition of their range, that is, the forest environment in which they live. Food is of prime importance. Some years ago, plenty of food was provided by the forest regeneration following outbreaks of spruce budworm and numerous forest fires which destroyed the standing forest trees. But recently, there have been few budworm infestations, and numbers of forest fires are greatly reduced. The major forest disturbance producing moose food has become pulp cutting.

What effects do forest practices have on the moos range? To find out, a new program was launched during the spring and summer in which crews of students were hire to set out plots and count plants in areas where various forest operations were being carried on. Plots were established in large jack pine clear-cut areas. The results of aeri herbicide applications were examined. The intensive treat ment known as scarifying, which consists of knocking over brush and small trees with large machines and clearing patches down to mineral soil, to provide better seed befor forest trees, was examined and plots were established it treated areas with comparable control plots in untreated areas. In addition, burned areas of varying ages were examined to find information on how long they continue to provide food for moose.

This was merely the beginning of a long term program fact finding concerning changes in the forest and the effects on moose. When adequate information is at han it will be possible to integrate moose range management into forest management plans and procedures, so that of forests of the future will not only grow good trees but support optimum moose populations as well.

BEAR HUNTING AND MANAGEMENT

The goal of black bear management is to provide oppo tunities for recreation and economic benefits to the peop of Ontario from this resource. The continued success of or management program is indicated by the increasing sale of spring bear hunting licences. Sales of licences to residen have increased rapidly from 813 in 1966 to 1,359 in 1966 Sales of non-resident licences have increased even mor rapidly from 3,960 in 1966 to 9,400 in 1969. Since monon-resident bear hunters spend \$80 to \$90 on their hunting in the exchange of money generated by spring bear hunting in Ontario is fast approaching the million dollar mark.

In addition, many people hunt bears along with deer of moose in autumn. The report of 48 bears shot by organize deer hunters in Tweed District alone during 1969 is about average for the past ten years. The export of bears from northwestern Ontario has been increasing from 124 in 1966 to 248 in 1969. It is evident that bears are increasingly important as a supplement to deer and moose hunting.

Meanwhile the nuisance bear problem continues to fluctuate. After a very high number of nuisance bears were shouring the summer of 1968, there was a sharp drop in modistricts during 1969 with only a few districts reporting bears still numerous.

This problem may relate to the abundance of wild berse. Bears, looking for food, may range much farther when the ries are scarce and thus come in more frequent contact the humans. Steps are being taken to reduce the numbers nuisance bears shot by broadening our program of trapeg, drugging, removing and releasing these bears. Very bears return to continue making trouble. Thus, the step of our resource is reduced in a humane way.

A few bears are killed on the highways each year. One in puskasing District caused \$600 damage, although most otor accidents involving bears result in no more than out \$100 damage. Since fewer animals are involved as all, highway accidents are not nearly the problem with ars that they are with deer and moose.

PLAND GAME MANAGEMENT

pland game management objectives include regulations signed for maximum use of resident small game species, yeral of which are usually under-harvested; encourageent of management practices which increase the proction of small game; and to provide accurate predictions ative to the annual availability of small game.

Upland game hunting continued to be a popular pastime Ontario. For the 1968-9 hunting season, 360,192 resident all game and summer hunting licences and 12,900 non-sident small game licences were sold.

UFFED GROUSE

r the second year in a row, grouse populations across ntario were at low levels, and it was obvious that grouse ere at or near the bottom of their nine-year cycle.

Lower hunter success was reflected in bag check inforation; the average number of grouse shot per 100 hours woodland hunting across the Province for the years 1966 rough 1969 was 47, 46, 32, and 26, respectively. Similarly average number of birds shot per hundred miles by ose hunting along bush roads was 6.5, 9.4, 4.9, and 2.1, the same period. Grouse were at a low ebb in their ninear cycle in 1969. One thing is certain however. The cycle II continue, and it is extremely likely that improved ouse hunting will be experienced in 1970 in most areas.

HARPTAILED GROUSE

ter two consecutive years of migration from the lownds of James and Hudson Bays to more heavily populated eas, populations of northern sharptailed grouse "stayedit", and no extended seasons were established.

Prairie sharptailed grouse were available in good num-

bers in northwestern Ontario. Fort Frances Forest District personnel live-trapped and transferred 31 prairie sharptailed grouse which were released in Grenville County. This was the second introduction of these large game birds into southern Ontario in recent years. There is evidence that the first introduction in the Lindsay Forest District is gradually becoming established.

RING-NECKED PHEASANTS

Populations of ring-necked pheasants continued to improve across the main breeding range in counties north of Lake Erie, but land use practices continued to remove habitat essential as winter and nesting cover, and the long-term outlook for pheasants is not bright.

Sportsmen's clubs and regulated townships continued to stock birds provided by the Department. Those which raised birds to adult size before release provided the best return to the hunter. The Department produced 40,050 chicks, 15,450 poults and 6,732 adults. The latter were used on public hunting areas. In addition, 2,210 spent breeders were released in late spring across the southern counties.

The adult bird stocking program showed its worth in Lake Huron Forest District, which over the whole season showed a hunter success ratio of four hours per bird taken. This compares to 4.4 hours and 5.6 hours per bird in the previous two years. Release of younger pheasant stock is much less successful in putting birds in the hunter's bag.

Natural reproduction was lower in Lake Simcoe District. Success of pheasant hunters there fell 27 per cent from the previous year to 0.5 birds per gun-day.

HUNGARIAN PARTRIDGE

The best Hungarian partridge hunting continued to be provided by the eastern counties of the Province. Huns were not as abundant as in 1968, however, and birds bagged per hunter-day fell to 1.4 from 2.9 the year before. Causes of periodic declines in Hungarian partridge populations are not known; it is possible that this bird undergoes cyclic fluctuations of scarcity and abundance in Canada much like the ruffed grouse or varying hare.

Kemptville District staff live-trapped partridge from unhunted areas, and a release of 45 was made in Sombra Township, Lambton County, on March 11, 1969. It is hoped to establish huntable populations of "Huns" in every suitable area of southern Ontario.

SQUIRRELS

Grey squirrels continued to supply good recreation in southern Ontario for the relatively few hunters who pursue them.



Giant Canada geese are being raised at many locations to build the future breeding stock of wild goose populations in southern Ontario. Above: these families are located in the goose management unit at Holiday Provincial Park. Photo by D. W. Simkin.

About 40 fox squirrels, until now resident in Ontario only on Pelee Island, were obtained from Michigan and released near the border of Lambton and Kent Counties. These squirrels, larger than the grey, use more open-brown timber habitat and should prove an interesting and sporty game species if they become established. They compete but little with the grey squirrel, and they have little tendency to interfere with agriculture, which makes them most desirable immigrants.

RABBITS AND HARES

The European hare (or jack), the cottontail rabbit, and the snowshoe (or varying) hare produce much recreation, particularly in heavily hunted southern Ontario.

The varying hare, a cyclical species, continued to increase over much of the Province. Only in certain areas, and in eastern Ontario in particular, is this species sought by hunters.

Cottontails, European hare and varying hare were slightly less available than in 1968. Lake Simcoe Forest District checked 426 "rabbit" hunters who had taken 0.4 pieces of game per hunter. It took an average time of 8.6 hours to take one of these three species. This compares with 0.53 units of game and 6.2 hours per rabbit bagged in 1968. Census work on rabbits and hares in Lake Huron Forest District also indicated that cottontails and jacks were slightly less abundant than the previous year.

WOODCOCK

The popularity of this migratory game bird is increasing each year. Because of its growing importance as a game species,

breeding ground surveys of singing males were made fo second consecutive year on 72 randomly selected ro across southern Ontario. The average number of wood per route increased from 6.7 to 7.5 over the previous years.

Federal surveys of migratory bird hunters estimated 76,232 woodcock were taken in Ontario during the 196 season, compared to 55,952 the year before. The ave bag per successful hunter was 6.1 woodcock.

WATERFOWL MANAGEMENT

Waterfowl management objectives in Ontario include maintenance of populations at or near levels which occu in the 1955-8 period, and the provision of sustained qu recreation for hunters and non-hunters alike.

The season was an extremely good one for those hun waterfowl in Ontario. Over the season, 123,891 residents 9,081 non-residents purchased migratory bird hun permits. Estimated total harvests of ducks in Ontario 928,112, an increase of about 20 per cent over 1968.

harvest was not quite as large as in 1967 when slightly of a million ducks were taken in the Province. Mallards, be ducks, wood ducks, blue-winged teal, green-winged teal ring-necked ducks, in that order, were the main species tall

Opening day hunting success for 1969 was above averand all Forest Districts in southern Ontario reported aver bags of over one duck per hunter. Some of the better at were Swastika Forest District at 1.8 ducks per hunter, sou ern Lindsay District at 1.7 birds per hunter, and Tweed Fo District at 1.5 birds per hunter.

The year 1969 will be remembered as the "goose year' southern Ontario. Both Canada geese and snow geese streed over in most unusual numbers, across much of south Ontario, on their journey south. The stopover of snows work unusual since in most years they migrate practice non-stop from James Bay to their wintering grounds in earn Louisianna. Although no statistics are available, there little question that southern goose hunters harvested mageese than usual.

Blue and snow geese were in very much better supply the James and Hudson Bay coasts. Statistics from the Mor River check station and commercial camps on James I indicated that the 1969 blue and snow goose kill, at 19,5 birds, was the highest in five years. In addition 659 Canageese and 4,691 ducks were taken on James Bay.

Pre-season waterfowl banding continued to be an impornt management activity in following trends and populans where, unlike western Canada, aerial and ground rest nesting species as the black duck and wood duck. For 12,000 ducks and geese were banded by the Departent in association with private co-operators at over 35 anding stations across the Province in 1969. This was an crease of over 2,000 over the previous year.

iant canada goose Rogram

or the second consecutive year, giant Canada geese were opagated and held at several game management areas in uthern Ontario. The Counties of Wellington-Waterloo, the three southern townships of Grey County, East Luther of outferin County and South Dumfries of Brant County were used to goose hunting. Releases of pairs of giant Canada three ease are planned for this area, and ten pairs were released 1969. Very much larger releases are planned for future that areas. This program to establish the giant Canada goose, a muthern breeding race, was begun in 1968 in association in the Ontario Waterfowl Research Foundation at Guelph. It is exected that releases of breeding stock will be extended to the southern areas of the Province.

VILDLIFE EXTENSION PROGRAM

Wildlife Extension Program was initiated in 1969. A proncial co-ordinator is now on staff, and extension biologists are been located in the Lake Erie, Lake Huron and Lake mode Forest Districts.

The extension program is designed to do three things. rimarily, it will provide access to private land for public unting recreation; and further, it will encourage wildlife tanagement practices on privately owned rural land and rengthen public appreciation of wildlife resources.

The program is tailored to southern Ontario where the eed is most acute for day-use hunting recreational opporunity. Because southern Ontario is for the most part omposed of privately owned properties, posting against unting and restrictive township by-laws have made it connually difficult for the urban hunter to find a place to hunt. hrough the Wildlife Extension Program, law enforcement game management assistance will be offered to landwares as an incentive to allow public hunting on their roperties.

Ancaster Township was selected as a pilot project area for the Wildlife Extension Agreement Area approach. Sixty-one landowners signed an agreement with the Minister to allow public hunting on their properties. A deputy conservation officer patrolled Ancaster Township during peak activity periods of the small game hunting season. Safety zones were posted around farm headquarters to restrict hunting access in areas where landowner-sportsmen conflicts often arise. In addition, a zenith phone line was established which allowed Ancaster co-operators to phone the Hespeler office if a problem arose.

This approach to alleviating landowner-sportsmen conflicts was evaluated shortly after the 1969-70 hunting season. Survey results indicated overwhelming approval of the program, on the part of participating landowners.

A new Department publication, entitled Wildlife Land Management for Ontario Landowners, has been released and made available to private rural landowners interested in improving their properties for wildlife. This 24-page booklet covers the major small game species found in southern Ontario wildlife habitat and suggests which management practices landowners can employ readily to encourage wildlife.

PROVINCIAL HUNTING AREAS

In the Provincial Hunting Area program, our primary goal is to provide a place to hunt in areas where hunting opportunities have become most restricted and the need for public hunting land is most urgent. Other goals are as follows:

to manage these lands to full capacity;

to produce a variety of wildlife species;

to produce a high quality hunting experience; to create a public awareness of the value of wildlife

in modern society; and

to encourage alternate uses which do not interfere with the above-mentioned goals such as wildlife photography, dog field trials, and nature study.

PHEASANT HUNTING AREAS

Pheasants were released in good cover in numbers according to demand on four hunting units in Provincial Parks as well as the Gananoque Provincial Hunting Area this year. In 1969, 4,592 man-days of pheasant hunting were enjoyed in the field. This program has provided hunting in areas where normally this recreational pastime would not occur because four of the five units are outside the native pheasant range. In Presqu'ile Provincial Park, pheasant hunting has been discontinued.

LANDS ACQUIRED FOR WILDLIFE PURPOSES, 1962-70

Area	County		Acres 1969-70
Luther Marsh	*Dufferin	969	50
Isaac Lake	*Bruce	295	295
Angle Ditch Marsh	*Bruce	200	255
Johnston Harbour	Bruce	4,404	200
Dept. Highways-		.,	200
transfer	various	1,062	
Holland Marsh	*Simcoe	1,298	923
Tiny Marsh	*Simcoe	2,246	J 2m J
Nonquon River	*Ontario	2,138	
Wye Marsh	*Simcoe	2,417	1,528
Dalton	Victoria	100	1,320
Brighton	Northumberland		56
Murray Marsh	*Northumberland		50
Gananoque	Leeds	1,046	
Winchester Bog	*Dundas	3,600	
Charlottenburg	Stormont	258	
Millbrook	Durham	188	
Long Point	*Norfolk	90	
Dalhousie Tract	Lanark	935	935
Lavant Township	Lanark	5,200	5,200
Watt Township	*Muskoka	145	145
MacCauley Township	Muskoka	1,220	, 13
Spence Township	Parry Sound	800	800
TOTAL		30,888	10,132

^{*}Wetland Projects

Of the 5,661 pheasants released at four provincial parks and the Gananoque Provincial Hunting Area, a limited number of pheasants were stocked in good cover at Tiny Marsh in Simcoe County and the Brighton Provincial Hunting Area in Northumberland County to provide opportunities to hunt pheasants outside the natural range of this game bird.

PROVINCIAL PHEASANT HUNTING AREAS, 1969

PROVINCIAL WATERFOWL HUNTING AREAS

Five waterfowl management units within Provincial F were in operation again this year to provide the public reasonable quality hunting opportunities for ducks geese.

PROVINCIAL WATERFOWL HUNTING AREAS, 1969

Name of Area	Acres	Daily Permits Sold (Zone A)	Seasonal Pe Sold (Zon
Long Point	1750	1369	220
Rondeau	9200	803	323
Darlington	380	214	
Presqu'ile	2170	_	505
Holiday Beach	262	-	831
Tiny Marsh (Opening Day Only)	2300	508**	_

Name of Area	No. of seasonal Hunters Checked	No. of Waterfowl Harvested	Average Per Hu
Long Point	220	(a) 1288	0.9
		(b) 372	1.7
Rondeau		(a) 1450	1.8
	105	(b) 223	1.8
Darlington	226	300	1.33
Presqu'ile		_	_
Holiday Beach	3429	1347	0.3*
Tiny Marsh (Opening Day On	– ly)	580	1.1

^{*}Bird/hunter low because sportsmen are concentrating on harvesting Canada geese.

^{**}No daily or seasonal permit required.

	Darlington	Sibbald Point	Earl Rowe	Point Farms	Gananoc
Hunting Area (acres) Hunters Pheasants Released Pheasants Released/Hunter Pheasants Harvested Pheasants Harvested/Hunter	880 1375	450 980 1471 1.5 1319 1.3	425 690 1092 1.6 990 1.4	600 553 263 0.5 240 *0.4	1041 1671 1460 0.9 1046 0.6

^{*}Bird/hunter low because of the experimental, limited release of pheasants at Point Farms Provincial Park.

Only one minor change in the hunting regulations was in ect this year. At the Long Point Waterfowl Management it, shooting hours were from one-half hour before sunce to noon. The reason for the shorter shooting hours was give waterfowl an extra half day without disturbance on a marsh to improve the hunt for the next morning. Past cords had also shown that most ducks were bagged before on. These are experimental shooting hours, only, and they a subject to change in future years.

ILDLIFE MANAGEMENT UNITS NDER DEVELOPMENT

the many land acquisition projects underway in Ontario various purposes, 12 parcels of land, totaling 16,385 es, are being actively developed to meet wildlife needs adequate food and cover. A brief description follows:

mer Provincial Hunting Area, 555 acres, Malahide Townb, Elgin County. Purpose: To demonstrate that the growof farm crops and a wildlife crop are compatible and t with suitable management this kind of multiple use is spible. Development, 1965 and 1968: brush piles for cotdial rabbits constructed; and planting of 650 wildlife ubs and 25,000 evergreen trees as a three-row windbreak the perimeter of the property. 1969: 10,000 evergreen es planted for wildlife food and cover.

gal Provincial Hunting Area, 780 acres, Southwold Townp, Elgin County. Purpose: To demonstrate that the growof farm crops and a wildlife crop are compatible and that the suitable management this kind of multiple use is posle. Development, 1969: 9,000 linear feet of runway was oken up and piled; 30,000 trees and wildlife shrubs were inted; and a dam to impound six acres of water was instructed.

slinch Tract, 500 acres, Puslinch Township, Waterloo unty. Purpose: This area is being developed and mainned as a small game and waterfowl management demonation area with specific purpose of establishing habitat table for cottontail rabbits and ruffed grouse. Developent, 1969: 980 wildlife shrubs were planted and several busand evergreen trees were planted; existing ponds for terfowl were deepened; and fencing was carried out.

ther Marsh, about 10,000 acres, Luther Township, Duffering Wellington Counties. Purpose: Most of the 969 acres in ovincial ownership are located within the Crown game serve at the north end of the marsh. No hunting is allowing this area. The upland fields are being farmed to profesod crops for waterfowl. Development, 1969: goose and enclosure were constructed; duck breeding ends were made using explosives; 1,650 wildlife shrubs

were planted; and shoreline was cleared to provide better waterfowl nesting cover.

Willow Creek Provincial Hunting Area, 4,404 acres, St. Edmunds Township, Bruce County. Purpose: This area is being developed to provide hunting for small game and deer and also public fishing. Development, 1969: deer yard improvement and stream improvement.

Tiny Marsh Provincial Hunting Area, 2,246 acres, Tiny Township, Simcoe County. Purpose: To provide public hunting for waterfowl in the marsh as well as hunting opportunities for small game on the uplands. In addition, opportunities to view and photograph wildlife are available. Development, 1969: one-half-mile access road constructed; 60 waterfowl nesting islands made.

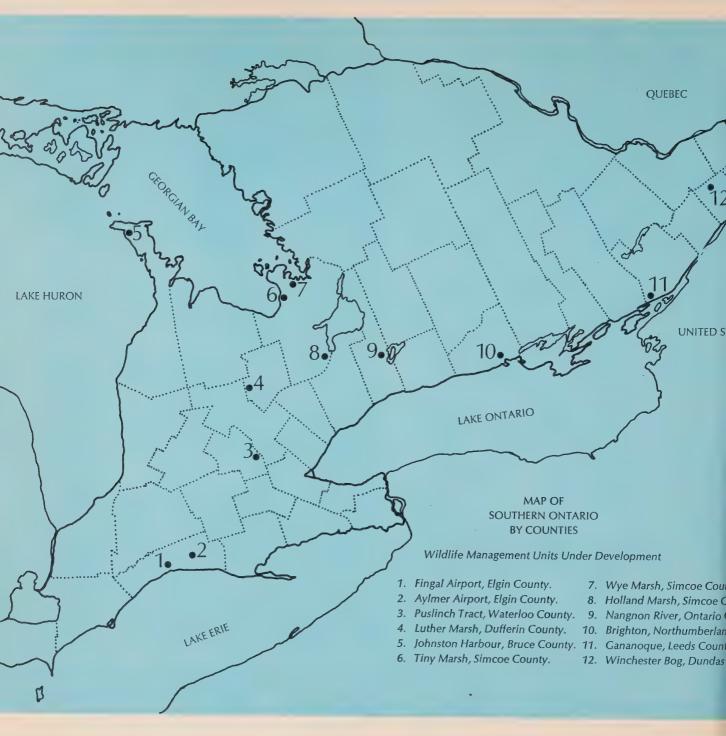
Wye Marsh Provincial Hunting Area, 2,417 acres, Tay Township, Simcoe County. Purpose: Similar to that described for Tiny Marsh. Development, 1969: maintenance building and office, fencing, half-mile access road, goose pond, two observation towers and one comfort station.

Nonquon River Provincial Hunting Area, 2,138 acres, Reach Township, Ontario County. Purpose: To provide public hunting for waterfowl and upland game as well as opportunities to view wildlife in its natural environment. Development, 1969: One parking lot and boat launching ramp. Holland Marsh Provincial Hunting Area, 1,298 acres, West Gwillimbury Township, Simcoe County. Purpose: as above. Development, 1969: One parking lot, ponds for waterfowl and one comfort station.

Brighton Provincial Hunting Area, 679 acres, Brighton Township, Northumberland County. Purpose: To provide public hunting for waterfowl and upland game as well as opportunities to view wildlife in its natural environment. Development, 1969: access road development, ponds for waterfowl, and one comfort station.

Winchester Bog Provincial Hunting Area, 3,600 acres, Mountain Township, Dundas County. Purpose: as above. Development, 1969: fencing, planting of wildlife shrubs, ponds for waterfowl, and access road.

Gananoque Provincial Hunting Area, 1969. No. of hunters: 1,671. No. of pheasants released: 1,460. Game harvested: 1,064 pheasants, 15 ruffed grouse, 21 ducks, 23 woodcock, 164 cottontail rabbits, 2 varying hare, 4 European hare, and 5 Wilson snips — a total of 1,298. Units of game per hunter: 0.8.



JR MANAGEMENT

charvest of wild furs throughout Ontario during 1969-70 comparable to that of the previous season although a cline in prices on most species was experienced. The trage price for beaver, based on figures obtained from sale of 89,000 pelts at the Ontario Trappers' Association Sales Service at North Bay, was down approximately 25 cent from \$20.16 in 1968-9 to \$15.06 in 1969-70. The trage price paid for mink declined from \$11.95 in 1968-9 \$6.78 in 1969-70. However, the mink harvest increased or the previous year, an indication that this species is revering from low population levels of the mid-Sixties.

Trapping activities were limited to some degree in many as of the Province due to poor travelling conditions reting from deep snow and slush on lakes and rivers. The partment continues to census beaver populations and ect trappers to those areas where densities are at levels ich will provide an equitable return to them. No major ease outbreaks occurred in wild furbearers during the

Beaver continue to cause some problems in rural and cote areas throughout the Province. Trappers are encoured to harvest nuisance animals early in the season to allete flooding conditions and prevent property damage in ese areas.

Fur royalties paid on 810,713 pelts, exported from and ocessed in Ontario up to June 30, 1970, amounted to 51,595. The estimated value of this fur was \$3,631,983, a cline of \$529,558 from the previous year. The price dene experienced in 1969-70 is attributed to the tight money additions and high interest rates experienced in Europe ring the past season.

Redator management ND control

e function of the predator control unit is to assess the deee of depredation caused by wildlife predators. It also plements or provides assistance in control programs here it has been determined that their presence is detriental to the domestic livestock industry or to maintaining sirable population levels of other wildlife species.

Department staff investigated 69 instances of predation domestic and wildlife prey species. A total of 53 control ograms were established. Farmers, who experienced losses domestic stock to wildlife predators, were assisted by epartment Officers in establishing control programs. As a sult of these programs, 38 timber wolves, 32 coyotes, 19 ar and 11 dogs were removed from the problem areas.

Predator control training courses were conducted in the Forest Districts of Sudbury, Sault Ste. Marie, Lindsay, Lake Simcoe and Lake Huron. Twenty-nine Department employees received on-the-job training, and 189 farmers and trappers attended extension training workshops.

During 1969, a total of 1,619 timber wolves, 2,016 coyotes and 77 hybrids were bountied in the Province. The number of timber wolves bountied annually has remained relatively constant for the past number of years. Coyotes have shown a gradual increase in numbers bountied each year since 1960. This increase may be related to the low population of foxes as the two species compete to a degree for the same food and space.

Payment of bounty claims amounted to \$69,996 during the fiscal year, compared with \$62,025 in the preceding year.

FUR FARMING

Declines ranging from 15 to 20 per cent for all types of ranch mink were experienced in the opening sales of the 1969-70 mink pelt market. While buyer attendance was good, demand was selective, and it was quite obvious that buyers were purchasing goods to meet only immediate needs. The initial sales recorded some 70 per cent clearance as compared with 85 to 90 per cent clearances last year.

There were indications that further declines could be expected in the sales in January, February and March, and buyers were fearful of purchasing quantities of pelts that they might not clear through the manufacturing levels before the next auction sale, when the same quality goods might be purchased at cheaper prices.

As was anticipated, declines occurred in the sales in February, March, April and May for all types of mink, ranging from 15 to 40 per cent as compared to the 1968-9 sales. By the end of May, however, 90 per cent of the Canadian mink crop was sold.

Despite the fact that 60 to 70 per cent of the crop was sold in the initial sales before the drastic decline in the market occurred, the grand average selling price for 90 per cent of the ranch mink crop fell to \$11.32. According to the Ontario Fur Breeders' Association, this average is about \$1.55 below the costs of producing a mink pelt in Ontario.

Due to the low returns, many mink ranchers in Canada, and particularly in the United States where the bulk of their crop was not offered before the drastic decline in the market occurred, are being forced to discontinue business. It is estimated that declines in pelt production for the 1970-71 season may reach 20 per cent in Canada and as high as 35 to 40 per cent in the United States. These may be offset to

some extent by additional pelt-outs when the pelts of breeder mink will be offered for sale.

The low prices and inactivity in the mink pelt market can be attributed to the economic conditions which caused the present slump in the stock market in the United States, the largest mink consuming country in the world, and to a lesser extent in the Canadian market. The tight money situation, with high interest rates, has had an adverse affect on the brokerage, manufacturing and the wholesale branches of the industry which operate to a great extent on credit.

The efforts of the National Board of Fur Farm Organizations, have been redoubled in their attempts to obtain quota legislation on the importation of mink pelts into the United States. Any restrictive import measure would adversely affect Canada and particularly Ontario, the largest fur producing province, because most of the top quality wild mink, and a good percentage of fine quality ranch mink produced in Canada, are exported to the United States. Developments are being closely watched by the Canada Department of Industry, Trade and Commerce and Canada Mink Breeders.

In anticipation of a poor pelt market and for economic reasons, the number of breeder mink kept on Ontario ranches as of January 1, 1969, remained virtually the same as for January 1, 1968. The increase in the number of mink pelts produced in 1969, as compared to 1968, is attributed to the small increase in the number of breeders kept and the number of breeder pelts placed on the market due to ranchers discontinuing business. From information obtained from the Fur Farmers' Reports, the Provincial production per female kept was calculated to be 3.57 and the mortality from all causes was 2,44.

In December, 1969, 51 Ontario fur farmers discontinued business due to the low pelt prices. It is obvious that unless there is a dramatic up-swing in the market where ranchers can at least recover production costs, there will be a further serious contraction of the industry in the Province in the next year.

The small production of ranch-raised fox pelts sold to good advantage with the present demand for all long-haired furs. Large quantities of these types are being used in the manufacture of "fun furs" and sportswear.

The incidence of disease on Ontario fur farms was minimal in 1969. Six cases of distemper, four cases of tuberculosis, three cases of pseudomonas, and one case of plasmacytosis were diagnosed at the Ontario Veterinary College, University of Guelph. The largest loss due to distemper was 326 mink on a ranch where they had not been vaccinated. The

loss due to pseudomonas was kept to a minimum by prompt use of vaccine stored at the College for this purporthe one case of plasmacytosis is not representative of status of this disease on Ontario ranches. Traces of this case can be found on most ranches. However, as ranch test for this disease without reference to the College, no curate record of its prevalence is known. The disease is controlled by killing those mink that show positive to the test

During 1969, a total of 387 Fur Farmers' Licences w issued; of these 358 were renewals, 27 were for newly tablished fur farms, and two licences were issued with retactive provisions to legalize the operation of unlicens farms in the previous year.

FIELD SERVICES

This is a service unit providing liaison between fish a game management and the preparation of regulatic amendments to regulations and The Game and Fish A 1961-62, and amendments. It is responsible for law enforment programs, the training of conservation officers, at the maintenance of seizure and prosecution records. In dition, records of angling and hunting licences are matained in a Central Licence Bureau incorporating hunter a angler surveys for management purposes and law enforment. Hunters and anglers may also be serviced in the mater of replacing lost licences by this bureau. Hunting licence examinations are a responsibility of Field Services in operation with the Provincial hunter training program.

LAW ENFORCEMENT

Where education programs fail to obtain the necessary operation of the public, charges may be laid. The object of preventing violation can sometimes be achieved by is ing warnings. Where court action results, a high standard of law enforcement training is essential.

A Provisional Summary of the Big Game Seasons was p vided seven months in advance of the open season, follow by a more comprehensive Summary of the Regulations a Seasons several weeks prior to the commencement of hunting. In addition to these two hunting publications, coolidated office copies of The Game and Fish Act, 1961-and the Ontario Fishery Regulations, 1969, were made available for distribution to law enforcement officers, coulegal counsel and the public.

The training of conservation officers and others, concerned with the enforcement of provincial and fedestatutes, is continuing with a total of thirty-eight officiand other personnel receiving in-service training during the year at Nym Lake Staff House, Fort Frances Forest Distrained the Ontario Forest Technical School, Dorset.

JUNTING LICENCE EXAMINATIONS

The hunting licence examination program has just completed its second year with a total of 22,474 applicants exmined in 1968 and 23,415 examined in 1969, an increase of 941 applicants. The twenty-one Forest Districts reported the following applicants examined in 1969.

Lake Erie3,931
Lake Huron 3,444
Lake Simcoe 4,184
Lindsay 881
Tweed
Kemptville
Pembroke 394
Parry Sound 474
North Bay 669
Sudbury
Sault Ste. Marie 818
White River 153
Chapleau 159
Swastika 518
Cochrane 521
Kapuskasing 416
Geraldton 152
Thunder Bay 1,135
Fort Frances 315
Kenora 423
Sioux Lookout 274
TOTAL23,436

Failure rates were highest in southwestern Ontario at 22 per cent while the remaining eighteen districts had a failure rate of only 8.4 per cent, with a provincial average of 10 per cent. This is an improvement of 3 per cent over the average of 1968.

Total accidents for 1969 numbered one hundred and thirty, an increase over the previous year. However, when passed on the rate of accidents per number of licences sold, which gives consideration to the yearly increase in hunters, there is a slight decrease over the yearly average for the past nine years of 20.3 per 100,000 licences.

CENTRAL LICENCE BUREAU

The Central Licence Bureau has been in operation since 1968. From that time, copies of licences sold to hunters and fishermen have been coming in at a steady pace. There are now approximately 1,200,000 hunting licences on record and 1,500,000 angling licences.

These licences, with the names and addresses on the licensees, serve as the basis of mailed surveys to hunters and fishermen in Ontario. Each fall, a survey is taken of the moose and deer hunt in Ontario. All surveys do not directly involve the public. Valuable information, such as age classifications and origin of the sportsman, can be obtained by sampling for information contained on the licence.

The Bureau assists our conservation officers and the police in matters of law enforcement through the "identification badge" number system. Landowners can identify hunters on their lands through this system.

The Central Licence Bureau also serves the public by verifying a hunting or fishing licence purchase so that a new or duplicate licence may be purchased in the event the original is lost or stolen. Each year, 500 applications for verification are processed; of these, some 350 come in late September and early October.

SEIZURES AND CONVICTIONS

The Seizures and Convictions unit recorded 5,164 offences with 4,654 convictions registered. The remainder were dismissed or withdrawn, or are incomplete to date. This is again the highest number of offences on record for a single year. The annual increases being experienced since 1962 are probably the result of increasing numbers of hunters and anglers and are following parallel courses.

Hungarian partridge, live-trapped annually in southeastern Ontario, are released into suitable habitat in southwestern Ontario, Photo by J. B. Dawson.



SEIZURES AND CONVICTIONS

	1965-6	1966-7	1967-8	1968-9	1969-70
Number of Offences Number of Convictions Cases Dismissed	2,581	2,942	3,404	3,557	5,164
	2,347	2,626	3,239	3,489	5,219
	64	93	105	183	151

WITHOUT A LICENCE (CONVICTIONS)

Activity	No.	55-6 % uency	No.	66-7 % uency	No.	57-8 % uency	No.	68-9 % uency	No.	9-70 % uency
Fishing without licence Hunting without licence Trapping without licence	106 360 6	4.6 15.3 0.2	204 443 5	7.7 15.9 1.2	178 467 14	14.9 23.1 41.1	237 589 32	6.5 16.0 0.87		19.5 10.6 .58
	472	20.1	652	24.8	659	20.3	858	23.37	1432	30.68

VIOLATIONS, 1969-70

1. Angling with more than two lines. 2. Possession of overlimit of fish 3. Taking fish by means other than angling 4. Taking fish during closed season 5. Possession of fish during closed season 6. Possession of spear 7. Miscellaneous, including fishing without licence	321 542 211 134 79 68 1,188
Total, Fishing Violations	2,543
1. Possession loaded firearm in vehicle 2. Hunting during prohibited hours and jacklighting 3. Possession loaded firearm in power boat 4. Hunting in closed season 5. Possession of game in closed season 6. Hunting protected birds 7. Failing to wear a back patch 8. Miscellaneous, including hunting or trapping without a licence 9. Careless hunting	470 340 152 83 24 105 381 910 18
Total, Hunting Violations	2,483
Total Violations	5,026

ISHERIES SECTION PORT FISH AND HATCHERIES

ne responsibilities of this Unit are to manage and develope natural fisheries resource; to augment it where possible ad desirable by the planting of hatchery fish and the delopment of additional fisheries; and to encourage wise see of the resource.

To accomplish these objectives in conjunction with field aff, Unit personnel are involved in the planning and co-dination of programs to assess the fishery and its degree utilization by anglers; to determine the effectiveness of h plantings; to establish angling seasons and regulations and to test their validity; to initiate habitat improvement; to udy fisheries problems and to evaluate remedial action; to rovide public access to natural waters and to acquire and evelop public fishing areas; and to dispense information and to promote the sports fishery.

The operation of an extensive system of fish hatcheries is important part of fish management in Ontario. Productor and distribution of fish stocks, modernization of the atchery system, and the application of new fish cultural echniques are involved in the program.

NGLING REGULATIONS AND SUMMARY

umerous, minor amendments to the Ontario Fishery Regutions were enacted to solve specific management probms or to permit more liberalized fishing in keeping with the status of the resource.

Winter fishing for brook trout in the streams and ponds f St. Joseph Island was prohibited by placing the island in ivision 2.

Algonquin Provincial Park was consolidated as Division 3, rather than Divisions 13 and 14.

Winter fishing for brook, brown and rainbow trout was stablished for the southerly portion of the District of Musoka by placing it in Division 7.

That portion of Crowe Lake in the County of Peterborugh was deleted from Division 6 and placed in Division 7.

Winter fishing for brook, brown and rainbow trout in Disision 10 was extended two months by establishing the pening date as January 1st.

The open season for rainbow trout in Divisions 1, 2, 16 and 17, and in the special rivers having an extended fall cason, was extended to December 31st.

The open season for bass and maskinonge in Division 12 (Ontario - Quebec border waters) was extended to March 31st.

An "all year" open season on maskinonge was established for Divisions 20 and 24.

The over-all closing date for fishing in Algonquin Park was extended from October 15 to November 30.

The daily catch limit on lake trout was reduced from five to three in Division 19 and in that part of Division 16 lying north of the French and Mattawa Rivers.

Sauger were included with blue pickerel and yellow pickerel relative to the daily catch limit.

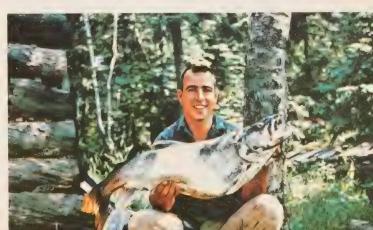
The daily catch limit on brook trout was established as ten fish, or five pounds plus one fish, in the following counties which constitute the Lake Huron Forest District: Brant, Bruce, Grey, Halton, Huron, Oxford, Perth, Waterloo, Wellington and Wentworth.

Blue pickerel and sauger were included with yellow pickerel relative to open seasons for angling.

The open season on brook and brown trout was established from January 1st to September 15th in the following areas: Eugenia and Bells Lakes in the County of Grey; Cameron and Gillies Lakes in the County of Bruce; and Pinery Park Pond in the County of Lambton.

The Summary of the Ontario Fishing Regulations was improved by the addition of further relevant information, by the deletion or clarification of wordy passages, by the rearrangement of material, and by effecting a general tidying up of the format.

A thirty-pound lake trout taken from Saganaga Lake, Thunder Bay Forest District. Photo by C. E. Monk.



LICENCES

Revenue from the sale of angling licences increased by a resounding 73 per cent as a result of significant changes in the licensing fee structure. A slight reduction (444) in the number of non-resident seasonal licences sold was more than compensated for by the higher licence fees and a substantial increase (9.8 per cent) in the sale of non-resident three-day licences.

The fiscal year 1969-70 was the first full year in which the new resident angling licence was in effect. The number of licences sold was 603,670.

In comparison, the sale of domestic or sport fishing licences is of minor importance. Some highlights, however, are worthy of mention. The sale of non-resident smelt licences and domestic dip-net licences increased 25 and 30 per cent respectively, and all licences in this group showed marked increases in sales.

EXTENSION

In 1968, a formal program to guide and assist in the development of fisheries resources on private lands was started with the appointment of one Head Office biologist and two field extension biologists. In 1969, an additional field position, in Lake Erie Forest District, was established.

While advice and services may be directed to private landowners for the creation and management of ponds or for stream improvement, the program is very concerned with public benefits. The obtaining of public access through purchase, easements, agreements and better landowner-

Lifting a pound net on Georgian Bay. Photo by F. P. Maher.



angler relations, and the preservation of habitat, particular water quality, migration routes and spawning areas, at prime concerns. Field staff are currently developing in provement techniques on Crown lands and preparing plar for private land projects.

PROVINCIAL FISHING AREAS

Ten pond areas near urban centres were operated on a intensive basis to provide public fishing for trout. The Hi Lake Hatchery in Swastika District and the George Challie area in Kemptville District were added to the list in 1969.

The Challies area was stocked with 1,947 rainbow an 500 brook trout for the first time in 1969. Returns of tagge fish indicate 69 per cent of the fish were harvested by the spring of 1970. Estimates for May and June alone indicated 1,335 angler visits, totalling 5,920 hours.

Estimates for the Cornwall Recreation Area, covering January through September, indicate 5,814 angler visit totalling 16,813 hours, with 5,691 trout caught.

Mount Pleasant Provincial Fishing Area again records the highest estimates with 28,120 angler visits, totallin 65,222 hours, with 22,500 trout caught.

WATER QUALITY STUDIES

In 1969, the Department, in co-operation with the Ontari Water Resources Commission, expanded its efforts to dete and reduce water pollution in the province. To provide the direction for the program and to maintain liaison with othe government agencies in the pollution control field, a Water Quality Control position was created in Head Office.

The 1968 pesticide monitoring program was directed the Muskoka Lakes, Lake Simcoe and Bay of Quinte, which had warranted further investigation to provide baseline da on the levels of pesticides in various fish species because widespread use of DDT in these areas over the years, ar where recent legislature has almost entirely prohibited use for black-fly and mosquito control.

Also, in 1969, the Department, in co-operation with the Ontario Water Resources Commission and the University Toronto, undertook a limited program of fish sampling at analysis to determine background levels of mercury and consider the possibility of mercury pollution in Ontar water systems.

In recent years, the Department has become increasing concerned about the possible effects to fisheries from heat water discharges at several large thermal Generating Statio being constructed on the Great Lakes. To consider the values possible effects of these heated discharges, a joi study, involving Ontario Hydro, Steel Company of Canac



lake survey crew member uses an echo sounder to obtain be bottom contours of a lake. Photo by F. P. Maher.

ntario Water Resources Commission and the Department, as begun in 1969 on Lake Erie at Nanticoke where a large ation is under construction, and where plans are underay for the construction of a large steel making industry.

The Department's campaign during 1968 to ensure proper arbage disposal by winter fishermen, through the use of lastic litter bags, on selected waters was so encouraging, not the program was expanded province-wide during 1969 belp keep our lakes and rivers free of domestic wastes.

NETTING CREWS

Department netting crews are stationed at Maple in southrn Ontario and at Thunder Bay in northwestern Ontario. heir duties are to provide netting gear for the use of District ersonnel on field projects and to maintain such gear by epair or replacement. They also instruct and assist field ersonnel on netting projects and actually carry out some of the more difficult ones.

In 1969, the staff at Maple actively participated in the ollection of lake trout and yellow pickerel eggs for hatchery purposes. They also provided numerous species of live ish for display at the Toronto Sportsmen's Show and the Canadian National Exhibition. In addition, a total of 85 trap nd pound nets and eight retainers was loaned out to nine prest districts, two universities and the Department's Research Branch. As a result, some 220 pieces of used netting ad to be overhauled, mended, rebundled and stored. A

total of 25 new trap nets and two retainers was constructed in 1969.

The netting crew at Thunder Bay was actively engaged in 11 field projects involving fish tagging, spawn collection, lake surveys, fish sampling, fish transfer and the demonstration of impounding gear. In addition, a total of 18 trap nets and two seines was loaned out to five forest districts. All gear in stock was overhauled and repaired; one new net was constructed; and three nets were rebuilt with modifications.

FISHERIES MANAGEMENT UNITS

Each Unit, although part of a forest district, has more precise responsibilities for large, important lake systems which require intensive inventory and management.

Plans were underway to establish new Units on Lakes Superior and Huron where a need was indicated for co-ordinated plans of fisheries management involving the activities of several forest districts.

Lake St. Clair. This Unit, established in 1968, moved into new headquarters, formerly a commercial fishery, near the mouth of the Thames River. Previous studies were reviewed and existing data summarized. Records of yellow pickerel tagged in the Thames River during the spawning run indicated a gradual dispersal of these fish into Lake St. Clair northwest as far as the St. Clair River and Lake Huron. A summer creel census, involving 5,634 anglers, indicated a total angling effort of 66,407 man-hours producing a catch of 53,972 fish. Lake St. Clair has an active ice fishery. From interviews of 1,492 anglers, an estimated 532,880 fish were caught, mostly yellow perch, from an estimated effort of 91,560 angler-hours. This is a catch of 5.8 fish per man-hour.

Lake Nipigon. Following establishment of this Unit in 1968 and a review of existing data from previous investigations, surveys were conducted of tributary streams to evaluate their potential for spawning habitat of game fishes such as yellow pickerel and brook trout. Spawning pickerel were tagged in some of these unsurveyed streams as well as those in Ombabika Bay. Nine individual bays on the lake were sounded and examined for spawning habitat and standing crops of young-of-the-year game fish. Initial investigations began in the Sturgeon River to determine the effects of logging and driving on sport fish populations. The Blackwater River was examined for stream-spawning lake trout. A sampling program of the fall fishery for whitefish was under taken. Brook trout were tagged during the spawning season on some of the tributaries to the lake.

Rainy Lake. In 1969, this Unit increased its staff by the addition of a Fisheries Management Officer. Between May and

September, extensive creel censuses were operated in the North and South Arms and Redgut Bay. The best fishing for yellow pickerel was in Redgut Bay, for northern pike and bass in the South Arm, and for black crappie in the North Arm. The abundance of fingerling yellow pickerel in 1969 approximated 650 per acre, an increase over 400 per acre in 1968 and 330 per acre in 1967. Lake-spawning yellow pickerel appear to be maintaining the population, whereas the stream-spawning contribution is low. If they are to survive, newly-emerged pickerel fry require large quantities of plankton, and streams are not great producers of this necessary food. Five sites were sampled regularly in 1969 to monitor water quality during the open-water season.

Lake of the Woods. Studies of the movements of yellow pickerel continued in 1969 with tagging of 1,000 fish in approximately equal numbers in Sabaskong Bay and the Keewatin Channel. Tag returns indicated fish from Sabaskong Bay do not travel very far; 75 per cent were caught within five miles of the tagging site. However, two were taken 22 miles northwest. Fish tagged in Keewatin Channel appeared more nomadic, some travelling in excess of 50 miles after tagging. Routine sampling of the commercial and angling catches continued to provide comparative data of the harvest of species for which these interests might compete. Estimates of the production of fingerling yellow pickerel were made by seine hauls during August.

Timagami-Nipissing. An intensive creel winter census on Lake Timagami indicated a yield to fishermen of 4,382 fish, of which 2,498 were lake trout and 1,581 were whitefish, for an estimated fishing pressure of 24,913 man-hours. Week-end fishing was 90 per cent of the total fishing pressure. Although very few planted lake trout have been recovered since plantings began in 1961, the majority of the fin-clipped fish would not be large enough to enter the fishery, so evaluation of this program must continue. Fish sampling for information on population dynamics was continued in Lake Nipissing with a yellow pickerel tagging project at Wasi Falls in Callander Bay. Serial sampling to monitor water quality continued.

Lake Simcoe. Investigations of populations of lake trout, yellow pickerel, smallmouth bass and whitefish continued in 1969. Smallmouth bass studies, in co-operation with the University of Guelph, were continued at a weir on the Pefferlaw River. Spawning adults were measured and tagged during their upstream migration, and numbers of resultant young were estimated during their downstream migration. Over 30 million yellow pickerel eggs were collected by artificial spawning of adult fish in the Talbot River. The sex ratio among approximately 500 fish was 6:1. This species

seems to be underexploited in Lake Simcoe, and efforts a underway to interest more fishermen in exploiting yellopickerel. Lake whitefish were tagged during the netting operations for spawning lake trout in the fall. Comprehe sive summer and winter creel censuses were continued.

Kawartha Lakes. Netting operations continued in these lak during 1969. Game fish were tagged to obtain information movements and mortalities. Creel censuses were use to make a special effort at retrieving data on tagged fish Information to date indicate most game fish sampled rangwithin small areas and are not highly nomadic.

Bay of Quinte and Eastern Lake Ontario. Creel censusing and monitoring of the commercial fishery continued 1969. Investigations of the declining fishery in some are of the Bay have not, as yet, determined the causes, although the declining water quality with consequent eutrophication and algae growth are suspect.

SPECIAL PROJECTS

Georgian Bay. This study on yellow pickerel was continued in the Moon River area throughout 1969. Trap netting we carried out during two periods, April 24 to May 20, ar August 5 to September 5. A total of 6,862 pickerel was call tured of which 4,806 were tagged with monel metal jatags and released. Population estimates indicate a spawing population of approximately 22,500 in 1969 as compared to 21,000 in 1968.

Tag returns from all sources (excluding spring trap neting) totalled 612 and indicated that the pickerel popul

Taking spawn from a brook trout at Dorion Hatchery. Pho by A. H. Berst.



tion becomes widely dispersed after the spawning period. Data on growth rates and sexual maturity showed little change from last year. Creel census studies revealed that angler success improved considerably in the Moon River area but declined slightly in the Shawanaga basin.

Examination of 65 tag returns from the Shawanaga area indicate that this population is now travelling farther afield after spawning. Over 75 per cent of the fish, which were tagged close to shore, had moved to off-shore waters and were occupying niches that were formerly inhabited by discrete off-shore populations only.

Commercial landings of pickerel decreased from 32,369 pounds in 1968 to 23,483 pounds in 1969. The largest decrease was in the northerly part of Georgian Bay and was partially offset by increases in other areas. A tenfold increase was experienced in the Shawanaga-Groundhog area and was due principally to the migration of fish from Shawanaga to Groundhog and the entrance of the 1965 year class to the fishery.

It is anticipated that these studies on yellow pickerel will be continued indefinitely.

Bark Lake. An intensive creel census study was conducted on Bark Lake, Renfrew County, during the summer of 1969, and on Aylen Lake which is being used as a control area for comparative purposes. A slight decline in angling success relative to lake trout was observed on both lakes when compared with the results of a similar survey in 1966. It was also noted that the average size of lake trout in the anglers' catch from Bark Lake increased slightly (3.1 to 3.6 lbs.) whereas the average size from Aylen Lake declined from 2.7 to 2.4 lbs.

Fall netting on the Bark Lake lake trout spawning beds was continued and resulted in the tagging and release of 147 lake trout. The return of tags by anglers from previously marked fish was encouraged, and 13 tags were eceived in 1969. Efforts to determine the average incubation period for lake trout eggs were continued and resulted in a igure of 145 days. Since the natural incubation period is so variable (55 days in 1968-9 and 145 days in 1969-70) and appears to relate directly to water temperature, it is probably more desirable to describe incubation in terms of degree days.

During the period October 17, 1969, to March 11, 1970 incubation period), the Bark Lake water level was lowered total of 28.61 feet.

This long-term project was initiated in 1965 to determine he effect of the extensive winter drawdown of water on

the natural reproduction of lake trout and will continue until 1975.

Lac Seul. Since construction of a dam in 1929, this large lake of 500 square miles in Sioux Lookout Forest District has experienced annual fluctuations of water levels between 14 and 16 feet. During 1969, a biologist and summer students continued the assessment of the effects of these fluctuations on fish production. Depth-sounding of the lake basin was completed, and assessment of water quality continued. Scale samples from 1,500 yellow pickerel and 1,500 northern pike, collected in gill and trap nets, will be used to relate age distribution with water fluctuations. As well, test netfing was used to assess the species composition in the reservoir. Investigations were initiated in tributory lake systems for supplementary information on sub-populations of fish and their contribution to production in Lac Seul. The program will continue in 1970.

PROVINCIAL FISH HATCHERIES

The potential for fish culture in the fields of protein production and recreational fishing has resulted in the development of a specialized technology. Fish culture has been practised for centuries but with varying degrees of success. New discoveries and techniques have had to evolve in the face of resistance from the old traditional practices.

Early provincial fish hatcheries concentrated on mass production of commercial species with little or no concern given to biological and environmental requirements. In general, the purpose of culture should be to assist rather than replace nature. Early fish culturists held the opposite view.

With better understanding of the requirements of hatchery fish for maximum growth and survival, we are now in a better position to justify the hatchery as an economical and practical tool of fisheries management.

The basic aim of our hatcheries today is the economic production of high-quality species to sustain and develop recreational fishing throughout the province. Our interests lie in maximizing the returns of hatchery fish to the angler, taking advantage of natural reproduction and growth afforded by releases into suitable natural waters.

Research is being conducted on the improvement of transportation and planting techniques to ensure maximum survival and returns to the angler. This includes the use of helicopters on small inland bodies of water. Our program of marking all hatchery fish by the removal of a single fin

has provided valuable information in this regard both from the public and from provincial lake inventory crews.

All fifteen hatcheries, located in twelve forest districts across the province, operated during 1969. An official opening of North Bay hatchery was conducted by the Minister of Lands and Forests in June, though the station was open for only partial operation, following renovation.

Fifteen Department employees attended the three-week Fisheries Management Course given each year at the University of Guelph. This course undergoes annual revisions to upgrade and familiarize our staff with current work in fisheries management.

The hybrid splake, developed for its rapid growth and early maturing qualities, and destined for the rehabilitation of Lake Huron, have already shown promise, despite the rather small initial planting at Meaford in 1968. During the latter part of the 1969-70 fiscal year, and into the 1970-1 fiscal year, over one-quarter million splake were released in the vicinity of Vail Point and Douglas Point in Georgian Bay and Lake Huron, respectively. A portion of this lot was also committed to South Bay on Manitoulin Island for follow-up studies. Ontario's ultimate annual commitment to the rehabilitation of these waters is one million yearlings. When coupled with assistance afforded Michigan in a similar program, it becomes obvious that additional hatchery space will be required if inland plantings of native species are to be continued at the present level.

Kokanee were reared from eggs received from Colorado, Montana and British Columbia as part of a continuing project to establish breeding populations in the Great Lakes. Fall fingerling kokanee were raised at Wiarton hatchery from spawn collected at Colpoy Creek near Wiarton. The application of fall fingerling plantings to the Lake Ontario streams may well succeed where previous failures had been experienced with eyed eggs and fry. It is apparent that kokanee have already established a small but viable population in the Lake Huron waters about the Bruce Peninsula and Manitoulin Island. Mature fish exceeding two pounds show promise, in both recreational and commercial fisheries.

Coho salmon, from Lake Michigan, were again reared at Chatsworth hatchery and released in the spring of 1970. Similar rates of smolt plantings were applied to the same waters as in 1969. The 1969 planting returned numerous precocious spawners to the Credit River in September of the same year. Approximately fifty per cent were marked with lamprey scars. However, we are optimistic that the coho will be a suitable species, if only on a short-term basis, for early rehabilitation of Lake Ontario, following lamprey con-

trol. Because the coho must be produced entirely in fis hatcheries (i.e., little hope is held out for natural reproduction in Lake Ontario waters), it's use will be limited an most probably it will be replaced with a species from which natural reproduction in the wild state can be expected.

Lake trout eggs from Manitoba were received by our Thunder Bay hatchery in exchange for brook trout egg from Dorion hatchery and maskinonge fry from the Dee Lake station. Good returns from the use of two-year-ol-lake trout, planted in the Muskoka Lakes, has stimulated study to be initiated in Lake Opeongo, Algonquin Park by our Research Branch.

Fifteen sturgeon, up to thirty-eight inches in length, wer transferred from the Ottawa River to the Westport hatcher and subsequently shipped to Russia for genetic work i their sturgeon-caviar hatcheries. At the request of th Canadian Embassy in Quito, Ecuador, 50,000 eyed broo trout eggs were shipped from Dorion hatchery to introduc the species into suitable waters of that country.

Experimental culture of the yellow pickerel at White Lak hatchery was continued to refine the technique. The discovery that pickerel can be reared on manufactured foo pellets, and cultured beyond the cannibalistic stage, made academic, as stocking rates required to exert a significant influence on a body of water are apparently prohibitive. The hatchery culture of yellow pickerel for planting in natural waters can be justified only for introductory plantings, not to supplement an existing population.

The golden shiner culture project continued at Westpo hatchery in an attempt to establish a hatchery oriente brood stock and to determine methods and procedures for the artificial culture of this species by the bait fish industr

Several provincial fishing areas across the Province, main tained by this Department and the Conservation Author ties Branch of the Department of Energy and Resource Management, were stocked with catchable size trout. Thes fish provide quality angling in areas of high population where suitable water and opportunity are limited.

Studies by Department personnel, in co-operation with the University of Guelph and the Ontario Water Resource Commission, conclusively proved the serious effect of DD pesticide on lake trout spawn and early fry stages. The work was carried out at Wiarton hatchery using both Lake Simco and Muskoka Lakes stock.

University and Government research agencies were als provided with Provincial hatchery fish for studies relate directly or indirectly to improving our knowledge of fish ries management. Included here are brook trout used for bio-assays (determining the toxicity of lampricide to stream ishes) by the Sea Lamprey Control Unit of the federal Department of Fisheries and Forestry.

Our commitment to the Great Lakes Fishery Commission or the rehabilitation of Lake Superior (500,000 lake trout earlings annually), following sea lamprey control on these vaters, was met by our Dorion and Tarentorus hatcheries.

On a permissive basis for two years, fall spawning rainlow trout eggs were imported from western United States by private industry. The oldest stock in the fall of 1969 was till one year short of full maturity. There was thus a shortge of rainbow trout spawn in Ontario, and our fear of importing egg-borne virus diseases resulted in a refusal for curther importations. Through co-operative efforts with the private fish hatchery industry, we met the entire demand may providing over 250,000 eyed rainbow trout eggs on a sale massis from our Normandale trout rearing station. It is antiipated that this demand on provincial egg stocks will diminish as the brood stock held by the industry matures.

The visiting public are welcome at our hatcheries seven ays a week. Conducted tours, particularly of school chilren, are offered to the public, and afford an opportunity observe spawning, incubation and fish rearing practices.

The assistance offered to the public, who are interested in everything from developing a private trout hatchery to the reasons why their tropical fish are dying, is becoming an ever increasing part of our work load. Our extension service is generally limited to the giving of advice verbally and by dispensing literature. However, several field visits were coordinated to solve particular problems.

During 1969, there were twenty-nine private fish hatcheries licensed for the sale of hatchery fish for restocking purposes, and fifty-nine for the sale of hatchery fish for human consumption purposes. The growth of this industry in Ontario appears to be limited only by the availability of good ground waters for the successful culture of trout.

DOMESTIC OR SPORT FISHING LICENCES

Type of Licence	Number of Licences Sold					
	1967	1968	1969			
Non-resident Smelt	5,171	4,870*	6,112*			
Resident Smelt	5,706	3,941	4,493			
Angler's Bait-fish	520	322	351			
Domestic Dip-net	425	826	1,076			

^{*}Includes non-resident bow and arrow fishermen.

ALE OF ANGLING LICENCES

ype of Licence	1966	1967	1968	1969
lon-resident Seasonal	409,539	411,768	446,468	446,024
on-resident 3-day	151,373	156,493	161,473	177,353
on-resident Organized Camp	10,541	10,550	7,670	6,998
esident-Introduced Jan. 1/69		,	69,648	603,670
esident Provincial Park (discontinued Dec. 31/68)	12.805	13.120	13,200	,
esident Provincial Park Organized Camp (discontinued Dec. 31/68)	444	446	399	

ROM ONTARIO PROVINCIAL HATCHERIES

ecies	1967	1968	1969
ass, Largemouth Fry Fingerling Yearling Adult	67,500 75,000 — 260	60,000 49,900 2,000 45	9,000 56,390 —

NUMBER OF FISH DISTRIBUTED FROM ONTARIO PROVINCIAL HATCHERIES (continued)

Species	1967	1968	1969
Bass, Smallmouth			
Fry	98,000	38,200	86,00
Fingerling	211,950	91,000	113,55
Adult	178	181	11
Herring			
Eyed Eggs	7,030,000	_	-
Fry	2,000,000	_	_
Maskinonge			
Fry ,	2,580,000	2,400,000	2,957,60
Fingerling	12,200	26,600	33,35
Yearling	_	-	
Adult	195		_
Pickerel, Yellow	13,054,800	6,240,000	10,750,00
Eyed Eggs	28,000,000	189,050	1,300,00
Fry	, ,	,	, ,
Fingerling	41,656	5,200 12	14,40
Adult	200	12	_
Salmon, Coho			
Yearling	-	-	156,88
Salmon, Kokanee			
Eyed Eggs	_	_	_
Fry	2,405,485	413,000	572,02
Fingerling	212,100	58,525	63,00
Splake	,	, and the second second	Í
Fingerling	_	2,000	
Yearling	65,452	36,226	64,10
2 Year-olds	7,300		_
Adult	_	984	43
Sturgeon	3		1
Adult	3	_	•
Trout, Albino Brook			
Yearling	12,861	_	_
2 Year-olds	1,093		_
Trout, Aurora			
Fingerling	_	_	2,58
Trout, Brown			
Yearling	_	_	14,95
			11,55
Trout, Brook	2.741.000		2.150.00
Eyed Eggs	2,741,000	_	2,150,00
try	50	_	-
Fingerling	1,125,454	524,463	524,05
Yearling	1,654,182	1,149,091	1,344,64
2 Year-olds	52,470	26,535	32,77
Adult	40,720	13,406	4,53

NUMBER OF FISH DISTRIBUTED FROM ONTARIO PROVINCIAL HATCHERIES (continued)

pecies	1967	1968	1969
rout, Lake			
Eyed Eggs	50,000		_
Fry		20,000	_
Fingerling	328,443	190,540	_
Yearling	1,291,969	1,351,745	1,133,300
2 Year-olds	12,600	10,462	14,915
Adult	405	1,209	_
rout, Rainbow		,	
Eggs	45,000	200,000	_
Eyed Eggs	631,500	333,000	20.000
Fry	6,000	_	85.750
Fingerling	87,810	67.536	44.050
Yearling	147.850	361.180	434,816
2 Year-olds	29,500	22.296	20,354
Adult	13,600	470	41
Whitefish	,		
Eyed Eggs	300,000	_	*****
frv	240,000	_	
	240,000		
Pike, Northern		202	
Adult	_	303	_

COMMERCIAL FISH UNIT

he value of a balanced harvest of available stocks in imroving the recreational as well as the commercial fisheries bust not be overlooked in achieving maximum social and conomic benefits from a resource.

The Commercial Fish Unit plays an integral role in the rogram of full, sustained and multiple use of the fishery source in Ontario.

The development and management of the commercial shery is accomplished through the assistance of field staff y collection and analysis of biological and economic statiscs on the harvest; planning and co-ordinating surveys to sees populations and evaluate the extent to which they re utilized; protection of the biotic potential through regutions (licences, seasons, quotas and size limits); and the inplementation of programs that would focus on the industry, making it responsive to langing consumer requirements and needs while adapting a dynamic renewable resource.

THE COMMERCIAL FISHERY

The catch by Ontario commercial fishermen in 1969 of over 63 million pounds is the second highest on record. The value of 7.4 million dollars for this catch represents a 24 per cent increase over 1968, which is the sharpest rise witnessed by the industry in over 20 years.

The commercial catch for the Great Lakes (56.5 million pounds) surpassed the previous high of 1962 by nearly two million pounds. Yellow perch and smelt were caught in record quantities in Lake Erie, accounting for nearly one-half and one-quarter, respectively, the total weight of the commercial catch in Ontario. Other dominant species in the Great Lakes fisheries are the lake herring from Lake Superior, the lake whitefish from Lake Huron, and the white bass from Lake Erie.

The commercial fishery varies widely for the lake basins and inland waters with respect to both size and composition of the catch. The northern inland fisheries continue to be the major source of yellow pickerel, lake whitefish, northern pike, and sturgeon in the Province.

While the number of men engaged in fishing declined four per cent from last year, the amount of invested capital remained the same. The industry continues to upgrade its operations which is demonstrated in the increased average earning per fishery unit.

Bait fish operations, which provide a valuable service to the anglers across the Province, are continuing to expand as a commercial fish industry. Culturing techniques and improved holding facilities have extended the period of supply and improved the quality of bait fish sold. Sales, which are not included in the above statistics, totalled 1.8 million dollars in 1969, which is an increase of 20 per cent from the previous year. The bait fish industry, which is controlled through licensing, increased five per cent to a total of 3,936 operations.

FISHERIES DEVELOPMENT PROGRAMS

In the harvesting of food fishes, the techniques used by a diverse industry, which ranges from the canoe and gill-nets of the northern Ontario fisheries to the electronically equipped trawlers in Lake Erie, are not necessarily the most suitable for the proper utilization of the resource.

The Department, in conjunction with a cost-sharing program of the federal Department of Fisheries and Forestry, has initiated and is actively participating in experimental projects designed to develop industrial or fishing techniques which have economic advantage to the commercial fishing industry. Two such projects were continued from 1968, and one new project was undertaken in 1969.

On Lake Ontario, where in 1968 an exploratory trawling program revealed large concentrations of smelt and alewife, insights into economic and biological aspects of a commercial trawl fishery are being gained. The project was continued for 1969 with emphasis on exploitation of this under-utilized resource. Again, a Lake Erie trawler and crew were contracted. From early August, 1969, until mid-March, 1970, over 300,000 pounds of fish were caught in 132 hours of towing time. The average catch rate during a period from December to March near Toronto was nearly 5,000 pounds per hour.

The daily catch rates varied greatly depending on the area fished, time of year that fishing was done, and trawl type. Little difficulty was experienced in selling the fish. On the basis of the consistently good catches made during the winter in western Lake Ontario, and the prices received for the fish, a decision was made that trawling could be profitable during at least part of the year. Plans to allow a maximum of three vessels to operate experimentally during 1970 are underway. These operations, which are to receive no

financial support from the Department, may well be the beginning of a trawling fishery in Lake Ontario.

A three-year project of financial assistance to the industry was terminated in 1969 with the completion of a fish mea plant using fish-processing waste material and fish unsuited for food. The plant, which operated on a production basis for nearly nine months in 1969, produced 1,450 tons of meal. The meal, which was shown to be as high in quality as marine sources, supplies a need for high-quality protein in poultry or animal feed formulae. Information gained from this project has shown that fish meal plants are capable of operating efficiently and add materially to the economy by utilizing material which would otherwise be wasted.

The third program supported by the Department in 196 was the development of a suitable bulk handling technique for smelt on Lake Erie. Traditionally, the handling of large volumes of fish in small boxes resulted in large labour an material costs. The new system, conducted in co-operation with elements of the Lake Erie commercial fishing industry uses large-capacity boxes designed for mechanical handling from the boat deck through road transport to the processing plants. The process proved successful in operation and has shown substantial cost benefits as well as improvements in the quality of the fish. With minor modifications, this technique could be used in other parts of the Province.

COMMERCIAL FISH MANAGEMENT

The Commercial Fish Unit is vitally interested in the development, protection, and use of the renewable water resources in the Province. The establishment of commercial fisheries is intended to serve desirable conservation an economic purposes. Operations are allowed only on the resource base that is capable of sustaining biologically an supporting economically.

Licensing policy, through sound biological managemen is aimed at strengthening the industry by limiting entry an withdrawing redundant fishing privileges.

Management of the fisheries involves keeping in equilibrium three ecological forces—the fish, the environmen and man. An ecological approach to conservation implicated that management objectives should be to develop or protect the environment in order to provide the greate yield in optimum habitat for man. Exploitation of fish populations necessitates fish management. Rates of exploitation are regulated by various restrictions on catch which constitute a final potential means for sound management man pulation of fish populations. Restrictive measures a directly related to fishing pressure and to the vulnerability of the species in the waters under consideration.

Adequate knowledge is vital to adequate management. If he Department is to achieve management goals, emphasis nust be placed on providing support for studies that will trengthen important gaps in the knowledge of how to nanage fisheries on a more predictable basis.

MARKETING DEVELOPMENT

The Commercial Fish Unit, in implementing programs to assist the industry in its efforts to advance technologically, operates, with the assistance of field staff, under an objective of sustained improvement of the lines of communication with commercial fishermen. The needs of the fishermen and the objectives of the Department can only be understood with the rapport that is established through direct contact in a program to provide an optimum, continuing contribution of renewable resource production to the economy of the Province.

Through a voiced need by fisheries throughout the Prairie Provinces and the Northwest Territories, the Freshwater ish Marketing Corporation was created by federal and provincial legislation to organize marketing, improve capitalization in processing, stabilize prices, and provide better access to world markets for all species of fish. After careful consideration, the Province agreed, in 1969, that the Corporation would become the buying and selling agent for reshwater fish in northwestern Ontario. Planning and direction by the Corporation is expected to provide economic dvantages not previously realized by the numerous remote isheries in the Province.

For several years, the Fisheries Prices Support Board, a ederally administered program, has helped in stabilizing ellow perch prices for the commercial fishermen on Lake rie. This program has been achieved by buying these prenium freshwater fish and holding them in cold storage until ne market was ready to accept the supplies. In spite of elatively high production in 1969, prices remained elatively strong and stable, which resulted in few fish eing offered to the Board for cold storage.

The Department continued its participation in programs plassist the industry by providing field service for the Fishing Vessel Insurance Plan, a low-cost insurance program pitiated by the Department of Fisheries and Forestry. Two aims for indemnity were met in 1969. The success of the rogram was further supported by an announcement of resucced premiums and improved benefit structure.

ISHERIES INVENTORY UNIT

ne Unit was established in 1966 to conduct an inventory Ontario's lakes and streams, and to determine the present

and potential capability of every body of water as a fish producing unit.

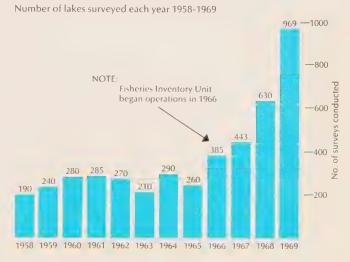
The refinement of survey methods, greater standardization in conducting inventory surveys, the search for better gear, and the evaluation of techniques all received increased emphasis during the year.

Range finders were introduced to determine precisely the distance from shore of the beginning and end of each echo-sounding run. More conductivity meters were made available so that crews could carry out their own complete water analysis without the need for costly and time-consuming laboratory analysis. Greater emphasis was placed on the use of mono-filament nylon gill nets for obtaining catches of fish in less time than with standard nets.

Lake and stream surveys are highly technical and require a high degree of training on the part of those carrying them out. To this end, forty-eight university students and nineteen fisheries personnel, from fifteen of the twenty-one forest districts, attended a one-week training and refresher course at the Ontario Forest Technical School, Dorset, prior to the commencement of the field program in June.

The determination of the age of fish to determine growth rates, dominant year classes and other factors is a vital part of fisheries management. During the year, an experienced fish scale reader, who will be responsible for the training of a number of specialists in this field, was hired.

PROGRESS IN LAKE INVENTORY SURVEYS



Statistics of the Fishing Industry in the Public Waters of Ontario for the Year Ending December 31, 1969

QUANTITIES OF FISH LANDED (pounds)

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Chann
Bowfin	3,256	21,040	_	_	_	
Bullheads	216,656	19,448	5,040	-	_	 (
Burbot	_	_	_	_		 3,27
Carp	541,043	189,531	81,978	67,331	26,576	7,50
Catfish	23,230	101,513	66,871	10,764	 8,512	_
Chub	_	, -	_	85,773	155,621	1,20
Eels	169,054	409	_	-		-
Freshwater Drum	23,504	339,377	17,739	67,091	85	_
Goldeye	_	-	_		-	_
Lake Herring	40,137	12	_	2,335	11,109	3,72
Lake Trout	_	-	_	412	- 61	
Lake Whitefish	80,564	1,405	_	493,181	196,283	160,2
Northern Pike	27,667	972	27,458	302	9,927	10,7
Yellow Perch	438,639	29,801,833	48,307	141,482	21,316	9,19
White Perch	250,421	-		_	_	_
Rock Bass & Crappies	47,720	28,314	47,689	211	22	8.
Round Whitefish	_		_	22,165	3,878	7,1
Saugers	84	99	_	14	-	_
Smelt	146,358	15,075,522	_	4,373	85	_
Sturgeon & Caviar	1,043	478	17,289	3,536	701	10,6
Suckers	16,644	16,317	106,483	94,941	41,397	47,1
Sunfish	159,566	70,526	73,218	_	_	
Yellow Pickerel	18,410	192,591	328,158	194,103	74,011	18,5
White Bass	3,500	874,840	40,496	3,353		-
Mixed Scrap "Animal Food"	62,891	1,291,769	58,368	244,473	31,035	32,2
Total Catch	2,270,387	48,025,996	919,094	1,435,840	580,619	312,1
Total Value	\$ 329,813	\$ 4,244,150	\$ 332,056	\$ 510,696	\$ 183,758	\$ 124,0

Total Value	Total Catch	Southern Inland	Northern Inland	Lake iperior
\$ 995	27,245	2,949	_	_
89,571	472,739	206,496	25,038	_
3,617	416,447	_	 413,174	_
99,962	1,046,316	131,715	_	635
66,625	220,016	9,126	 _	_
51,963	460,888	136	210,637	7,521
44,210	175,220	5,757	_	
13,935	451,488	3,692	_	_
48	362	_	362	-
215,555	2,779,505	27,742	298,362	96,085
131,450	282,195	_	 80,014.	01,696
1,086,324	2,956,604	8,614	1,804,939	11,366
98,831	871,091	2,603	787,180	4,220
3,316,640	30,506,201	14,105	23,698	7,626
22,665	251,500	1,079		_
43,150	186,233	27,993	33,458	_
7,676	56,692	30	4,583	18,883
12,896	50,964	23	38,319	12,425
561,456	15,226,338	_	-	_
119,739	89,943	11,060	42,327	2,891
25,591	1,273,986	21,475	 876,265	3,364
60,261	412,819	109,509	_	_
999,447	2,049,969	49	1,200,149	23,559
293,020	925,000	1,931	880	-
12,177	2,012,861	42,917	238,065	11,078
	63,202,622	629,001	6,077,450	51,349
\$ 7,377,804		101,174	\$ 1,148,877)2,654

Inventory surveys were conducted in all forest districts except Chapleau, Lake Erie and Lake Simcoe. Including both new surveys and surveys to up-date some work carried out in the past, 969 lakes were surveyed. Echo sounding to produce an accurate bottom contour map, water analysis, the determination of fish species present, and the gathering of fishing information form the principal parts of the survey. This information is later analyzed and the results used to provide a sound fisheries management program.

The accurate identification of all fish is an important requirement of each survey, but many of the smaller species are difficult to identify except by experts. In co-operation with the Department of Ichthyology of the Royal Ontario Museum, Unit personnel identified all collections of small fish sent in by lake survey crews. Over the province, 59 different species were identified.

Work to evaluate infra-red photography as an aid in plant identification was continued. Aerial photographs of Tiny Marsh near Midland were taken with both infra-red and colour film, and the results compared. Preliminary results show that infra-red film can be employed to identify aquatic plants from aerial photographs, but much refining of techniques is required. The work is continuing.

Although the primary emphasis has been on lake surveys, streams have not been overlooked. Following a study of stream survey methods used by other agencies all over the world, a two-man crew was employed to develop techniques suitable for our needs in Ontario. The crew worked in the Forest Districts of Lake Simcoe, Lake Huron and Lindsay, and by the end of the summer had prepared a stream survey manual which will be tested further in 1970.

INDIAN RESOURCE DEVELOPMENT

The policy of the Department in the major portion of northern Ontario favours local residents, mainly Indian Bands, in the development of fish and wildlife resources. The following projects were carried out during the past fiscal year under the Federal-Provincial Resource Development Agreement.

Indian Delegates. Indians attended District meetings held under the Agreement and are now taking an active part in the planning of projects under the Agreement.

Fur. From beaver population surveys in the Patricia Districts, annual estimates of population changes and distributions were related to food supplies, water and weather conditions, and diseases. Trappers from James Bay were assisted in establishing trapping areas in central Ontario.

COMMERCIAL FISHING EQUIPMENT

		Lake Ontario	Lake Erie		Lake St. Clair	Lake Huron	Georg Ba
NUMBER OF MEN EMPLOYED:		277	577		60	123	
FISHING BOATS:							
40' and over	No. Tons Value (\$)	4 50 24,000	131 3,211 2,762,760			29 616 456,822	174,8
20' to 39'	No. Value (\$)	56 97,275	54 223,165		16 45,300	13 57,300	 85,9
Under 20'	No. Value (\$)	 207 66,983	74 22,501		50 28,250	11,070	 20,2
FISHING GEAR: Gill Nets	Yards Value (\$)	926,428 226,078	4,084,237 1,489,167	(989,740 309,009	755, 196,
Pounds Nets	No. Value (\$)	1 200	215 96,000		473 173,050	13,200	 16,
Trap Nets		 9,550	210 130,800			142 120,843	 8,
Hoop Nets		 848 77,275	7,090		_ 		
Seine Nets		 2,740 5,490	8,850 31,325 8,602		3,700 7,550 26,100	100	 1,
Night Lines	Hooks Value (\$) No.	 30,100 3,770 2	2,125		4,740	100	-
Dip Nets		 50					 -
Trolling Lines		 743				1	 -
Trawls	11.7	 	113,610			800	
SHORE INSTALLATIONS:		 			17	1.5	
Freezers and Ice Houses		21 15,100	20 367,750		17 21,700	92,200	 111,
Piers and Wharves		39 14,155	73,257		17 13,550	10,700	 42,
Net Sheds		 123 88,265	132 515,076		59,200 59,200	37 121,700	101,
TOTAL VALUE		\$ 628,934	\$ 5,834,626	\$	353,340	\$ 1,193,744	\$ 757,

Totals	Southern Inland	1	Northern Inland	Lake Superior	North hannel
1,959	110		534	137	 35
207			7	 14	 5
4,534	_		79	262	70
3,726,282	_		74,332	188,000	5,500
295	4		72	 40	 9
741,265	2,460		121,515	 89,100	 9,250
895	85		320	71	24
385,606	14,515		183,357	33,210	 5,475
8,418,847	22,700		853,900	624,897	1,780
2,706,587	8,800		263,886	176,082	 7,540
790	_		42	8	12
345,720			30,225	 9,245	7,500
479	1		71	6	10
325,875	250		49,032	2,450	 4,500
1,740	696		114	_	-
141,352	46,412		10,575	 	
17,187	1,797			_	_
48,328	3,913		750	 	
70,252 11,677	2,800 470		750 22	_	_
11,077	3				 1
90	35		_	_	5
18			-	_	
743	_		_	_	_
119			_	5	 _
120,910	· —		-	6,500	_
402	8		223	 45	16
914,605	3,575		171,855	117,050	4,050
382	15		146	45	13
253,632	2,833		61,187	28,300	7,000
628	20		150	66	18
1,051,793	13,860		81,622	55,620	 4,750 5,570
\$10,774,465	97,123	\$	1,047,608	\$ 705,557	\$

Lake Surveys. Intensive and short-term surveys of lakes, to assess the potential for commercial fisheries, and also to investigate the potentials for sport fishing, are carried out annually.

Commercial Fish Management. Commercial fishermen were instructed in netting, cleaning and packing of fish in a project expected to improve substantially the quality of the product and its marketability. Advice was also given on camp sanitation, care of equipment, and bookkeeping methods. The use of trap nets of a special type was demonstrated to Indian fishermen on Lake of the Woods.

Tourism. Northern areas have been investigated for future tourist development, and, where feasible, Indians have been assisted in setting up and operating a tourist industry. Goose camps are in operation on Hudson and James Bays at Fort Severn, Winisk, Attawapiskat, Kapiskau River, Fort Albany and Tidewater. The local inhabitants realized \$62,000 from these camps in the fall of 1969.

Hide Collection. Moose and deer hides were collected throughout the Province and distributed to Indian Bands for handicraft work or personal use.

In addition, in timber management work, much of the Department's tree planting on Crown lands in the north is done by Indian Groups. An estimated \$140,000 to \$160,000 is expended annually for this purpose in the areas where Indians are likely to benefit. At the same time, to assist Indians in managing Reserve forests, the Department provides technical advice that includes advice on reforestation, logging techniques and lumber production.

Mr. Joe Chookomolin, manager of a Cree fishing camp on the Sutton River near Hudson Bay, with a brook trout, locally regarded as average-size. Photo by J. C. Weir.



PARKS BRANCH



Killarney Provincial Park.

Parks Branch is divided into three sections with duties an responsibilities as follows.

RECREATION PLANNING

Long-range planning for parks and related public recreation areas.

PARK PLANNING AND DEVELOPMENT

Detailed Provincial Park master plans and control of a park development according to approved plans.

PARK MANAGEMENT

Establishment and control of standards of park operations direction of park interpretive programs; establishment of nature reserve program; management of operating revenue and expenditures; compilation of statistical data; and management of a program of public access points to water, and a system of canoe routes, hiking trails and snowmobil trails.

CLASSES OF PARKS N ONTARIO

To meet the broad spectrum of present park requirements and to plan for the future, the Provincial Park system conains five different classes or types. Each offers different ecreational experiences, and each provides varied facililes in keeping with the class purpose.

- Class I, Primitive Parks are large areas of natural landcape preserved for recreation, education and scientific observation. They are reserved from natural resource exploitation and from major facility development such as erviced campgrounds.
- Class II, Wild River Parks are significant rivers established for recreation, aesthetic or historic purposes. They re protected from the intrusion of incompatible land and vater uses.
- Class III, Natural Environment Parks, landscapes of outtanding aesthetic or historic significance, are established rimarily for recreation and education. Other resource uses re permitted providing they do not conflict with recreation. Facilities and services may be limited so as to interfere s little as possible with the environment. Zones further protect special areas.

Class IV, Recreation Parks are areas of intensive recreaonal use in which the environment may be substantially modified to accommodate park users. There are two subclasses to this class: (1) Recreation Areas, which are dayuse oriented; and (2) Campgrounds which are camper oriented. These parks contain more fully-serviced facilities.

• Class V, Nature Reserves are unique and representative natural areas established for scientific and educational uses. General public enjoyment is permitted if it is not detrimental to the area.

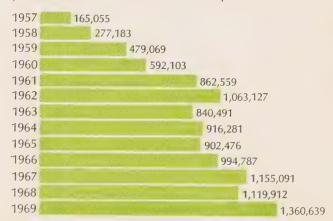
RECREATION PLANNING

Work was initiated during 1968-69 on a significant new research and planning program, the Canada Outdoor Recreation Demand Study (CORDS). This study, which is a cooperative project involving the 10 provincial park agencies and the Federal Government, aims at achieving a more complete understanding and measurement of outdoor recreation demands in Canada to guide investment and management planning, to identify and evaluate policy alternatives, and to forecast recreational use of resources as it relates to alternative development proposals.

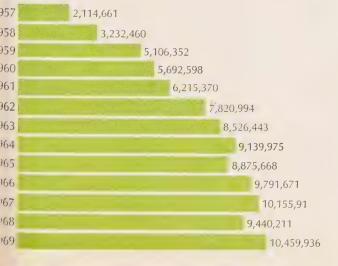
During the summer of 1968, the Recreation Planning Section carried out an inventory of some 12,000 public and private outdoor recreation facilities in both urban and non-urban areas. The Conservation Authorities Branch of the Department of Energy and Resources Management co-operated in this project which is one of the basic inputs into the CORDS program. During 1969-70, the inventory

TOTAL ANNUAL CAMPERS

Starting in 1963, the number of campers shown on renewal campsite permits were not included in the total camper statistics







RECORD OF PARK USE AND PARK FACILITIES IN 97 PROVINCIAL PARKS

	Visi	tors	Cam	pers	Camping	Swi	
Park District	Park Classification	1968	1969	1968	1969	Units	(
CHAPLEAU							
Five Mile Lake		5,658	6,674	3,338	4,020	85	
	Natural Environment	25,660	35,910	5,825	6,144	144	
	Natural Environment	_ _	1,478	-	1,190	- 40	1
	Natural Environment		11,487		1,324	48	1.
COCHRANE	Natural Environment	20,465	15,327	3.034	4,095	52	
Kettle Lakes		34,593	46,236	4,569	6,962	130	
Polar Bear		3 4 ,333	40,230	4,309 —	-	_	
	Natural Environment	_	_		_	24	
FORT FRANCES	ratural Environment					21	
Caliper Lake	Recreational Park	20,442	34,597	7,146	9,046	93	
	Natural Environment	30,794	23,461	2,580	3,570	100	
	Natural Environment	54,515	45,588	9,651	9,399	135	
GERALDTON	Tracarat Erritionition	- 1,4 12	,	7,55	-,		
	Natural Environment	29,118	22,146	4,703	5,016	68	
Klotz Lake		14,230	9.161	2.834	3.173	. 33	
MacLeod Lake		26,332	42,026	4,861	6,908	54	4
	Natural Environment	42,077	56,892	13,110	16,378	204	1
Rainbow Falls		68,250	75,771	21,118	24,595	194	
KAPUSKASING							
	Natural Environment	17,792	8,367	2,591	2,252	80	3
Remi Lake		42,565	45,862	4,157	5,374	80	
KEMPTVILLE							
Fitzroy	Recreational Park	101,726	118,951	10,100	17,943	255	
Rideau River		170,315	190,811	8,650	13,223	185	
Silver Lake	Recreational Park	85,765	72,067	9,633	22,254	194	
South Nation	Recreational Park	36,728	37,814	2,837	3,979	28	
KENORA							
Aaron	Recreational Park	47,006	47,202	9,928	10,631	70	
Blue Lake		32,293	26,194	9,320	8,866	175	
Rushing River		110,423	88.836	22,540	26,309	165	
Sioux Narrows		38,227	22,392	4,415	5,810	78	
LAKE SIMCOE	Decreet' ID I	100 424	0.10.100				
Bass Lake Devil's Glen		109,421	210,198	22,025	20,758	153	
Earl Rowe		58,210	49,438	2,496	3,978	40	
Mara		235,595 58,009	351,768 49,351	23,342 9,995	40,231 9,511	545 100	
Sibbald Point		274,184	294.462	9,995 27,374	36,266	725	
Six Mile Lake		100,964	142,672	16,059	20,641	180	
Springwater		71,143	67,386	-		-	
Wasaga Beach		830,149	947,941	_	_	_	3

t	Picnic Area (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Launch Ramps	Trailer Sanitary Stations
	4	_	11/4	Х	X
	17	-	1	X	· X
	_	-	- 3	X	_ X
	3	_	3	_	Х
	15	_	53/4	X	X
	45	_	51/2	X	X
	- 1½	_	1 1/4	_	
	5	_	_	X	X
	10 5	— М	1 4	X X	X X
	,	171	7	^	^
	6	_	9	Χ	X
	2 5	_ _	_ 2	X X	X X
	2	_	1	_	X
	5	_	2	X	X
	38			X	Χ
	30 30	_	1/4	X	X
	221/2	-	_	X X	X X
	22 21 ₂	_	_	X	X
	8	_ _	_	X	_
	7	_	1	X	X
	6 23	_	- 1/2	X X	X X
	2	_	- 72	X	X
	18	_	_	X	X
	6		1/2		_
	40 211 ₂	_	_	X _	X X
	130	M	2	X X	X
	15	_	_	X	Χ
	63 262	_	_	_ X	_
					inued

data were tabulated and bound into a number of volumes which, in total, present a description of the supply of outdoor recreation facilities for Ontario. During 1970-71, mapping of these facilities will begin for the preparation of an outdoor recreation facilities atlas for the province.

During the summer of 1969, under the auspices of CORDS, a Park Visitor Study was carried out, again in conjunction with the Conservation Authorities Branch. Thirty-six provincial parks were included in the sample. The study was extremely successful, and the keen interest of park visitors was reflected in the high rate of return (over 75 per cent) of self-administered questionnaires. The objective of the study was to gain insight into the locational, travel and socioeconomic characteristics of the park-visitor, as well as their activity and use patterns. A great deal of information is now available in the form of tables describing the park visitor.

The CORDS program is also closely integrated with the Tourism and Outdoor Recreation Plan (TORP) program now underway as a co-operative undertaking of several departments—Tourism and Information, Treasury and Economics, Municipal Affairs, Education, Highways, and Lands and Forests. The purpose of the TORP program is to provide the factual basis, and to formulate alternative plans, for the attainment of the social and economic goals defined in Design for Development insofar as they relate to tourism and outdoor recreation.

The summer of 1969 also included a sample survey of boaters on the Trent-Severn Waterway carried out for the Department by students of Trent University. The objectives of the study were: to assess the demand for outdoor recreational facilities on the waterway; to ascertain the characteristics of water-oriented recreationists; and to gain a more precise knowledge of the actual boat traffic in the Trent-Severn System. Interim analysis of the data, collected by means of oral interviews, has been limited to simple summaries and tabulations. A final report on more detailed analysis of the data is expected shortly. The results of this study are being used as part of the data base for the Canada-Ontario Rideau-Trent-Severn Study.

In conjunction with the current master planning process in Algonquin Park, the Department commissioned an Economic Impact Study in 1969. The purpose was to discover the economic contribution that recreation and the forest industry made to the local and provincial economies. The information will add to the understanding of the total role of Algonquin Park in Ontario. This is part of a continuing series of studies covering all aspects of the park.

During 1969-70, work continued on the assessment and evaluation of lands for future provincial park development,

RECORD OF PARK USE AND PARK FACILITIES IN 97 PROVINCIAL PARKS

Visitors Campers Camping Park District Park Classification 1968 1969 1968 1969 Units	
LAKE ERIE Holiday Beach Recreational Park 92,087 147,701 2,631 2,788 56	
Ipperwash Recreational Park , 277,329 352,143 19,413 19,310 266	
John E. Pearce Recreational Park	
Louig Follit, Recreational Fark	
Pinery Natural Environment 500,303 842,853 72,821 123,725 1,075 Port Bruce Recreational Park -	
Rock Point Recreational Park 37,372 47,127 4,186 5,158 47	
Rondeau Natural Environment 512,313 506,257 36,406 32,706 433	
Selkirk	
Turkey Point	
Whether the recipient and so, 102	
LAKE HURON	
Craigleith Recreational Park 42,561 74,090 11,028 23,406 172	
Cyprus Lake Natural Environment – 16,876 – 5,212 168 Inverburon Natural Environment 173,820 122,071 13,122 25,855 324	
Inverhuron Natural Environment 173,820 122,071 13,122 25,855 324 Point Farms Recreational Park 80,696 119,431 6,490 12,754 200	
Sauble Falls Recreational Park 130,394 142,113 11,434 20,614 146	
LINDSAY	
Balsam Lake Recreational Park 69,797 99,727 17,944 19,740 320	
Darlington Recreational Park 109,006 148,602 20,637 26,425 400 Emily Recreational Park 149,072 109,336 14,863 16,417 275	
Emily Recreational Park 149,072 109,336 14,863 16,417 275 Ferris Recreational Park -	
Mark S. Burnham Recreational Park 12,433 12,342 – – –	
Presqu'ile Natural Environment 238,946 276,791 30,929 33,925 500	
Serpent Mounds Natural Environment 175,188 148,323 16,476 18,491 130	
NORTH BAY Antoine Recreational Park 9,864 8,885 1,354 769 29	
Antoine	
Marten River Recreational Park 43,047 67,577 11,167 11,306 224	
Samuel de Champlain Natural Environment 59,666 53,938 8,413 10,026 224	
PARRY SOUND	
Arrowhead Recreational Park 57,562 62,046 12,023 11,149 253 Grundy Lake Natural Environment 170.454 175.549 43,759 31,907 537	
Grundy Lake Natural Environment 170,454 175,549 43,759 31,907 537 Killbear Point Natural Environment 306,967 308,733 55,174 40,438 939	
Mikisew	
Oastler Lake Recreational Park 196,370 153,279 21,213 17,831 170	
Restoule Natural Environment 41,466 24,365 11,109 5,316 229	
Sturgeon Bay Recreational Park 65,111 34,822 9,896 7,622 89	

Picnic Area (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Launch Ramps	Trailer Sanitary Stations
83 8 2 16 20 41 ₂ 15 40 12 29 33	- - - EC - - M - -	- - - 6 - - 13 ³ / ₄ - -	X X X X X X X X	X X X X X X X X
12 4 19 ¹ ₂ 10 9 ¹ ₂	EC - EC -	- 10 1 ¹ / ₄ -		_ _ X X X
25 120 25 20 4 110 30	_ M _ _ _ M EC	1 - - - - 3	X X X - - X	X X X - - X
13 4 ¹ ₂ 46 15	_ _ _ EC	- - - - 91/4	X X X X	X X X
1 8 30 10 2 -		- 2 4½ - - -	X X X X X X X	X X X X X Xinued

and a number of new park reserve areas were established through land acquisition and the setting aside of Crown lands. Particular emphasis is given to the provision of a broad spectrum of park types as conceived under the 1967 Ontario provincial park classification and park land zoning policy. The goals, development and management guidelines, and activities, for each area, are expressed through the preparation of detailed park master plans.

PARK PLANNING AND DEVELOPMENT

Master-planning continued in six provincial parks. The experience gained from the public hearings and briefs submitted on The Provisional Master Plan for Algonquin Park has indicated the need for much deeper study and more detailed information on which to base future master plans.

Site planning was done for sixty parks and park areas. Plans for six new park entrances were completed, and one was built. The program of upgrading park entrances is continuing. Development appropriations of \$3,500,000 were allocated for individual projects in 107 operating parks and park reserves. Development again was pointed toward upgrading existing facilities, particularly water supplies and sanitation facilities in operating parks. The installation of trailer electrical outlets was initiated in twelve operating parks. Designs and plans were developed for three new park buildings.

Kettle Lakes Provincial Park. Photo by L. Walton.



RECORD OF PARK USE AND PARK FACILITIES IN 97 PROVINCIAL PARKS

		Vi	sitors		mpers	Camping	Swi Be
Park District	Park Classification	1968	1969	1968	1969	Units	(
PEMBROKE		622.022	(50.705	115 570	02.001	1.205	
Algonquin		632,823	658,785	115,579	93,991	1,395	
Bonnechere		8,860	8,399	1,308	5,690	58 47	
Carson Lake		10,367	5,642	3,302	5,158	47 98	
Oriftwood	Recreational Park	6,969	9,431	6,818	6,418	90	
SAULT STE. MARIE	n in in	21.050	10.660				
Batchawana		21,950	19,669	2 190	3.949	80	
Mississagi		27,577	32,266	3,180	28,959	278	
Pancake Bay	Recreational Park	124,201	124,051	23,860	20,939	2/0	
SIOUX LOOKOUT					4.000	70	
Ojibway		1,880	6,927	1,239	1,828	72	
Pakwash	Recreational Park	6,235	4,272	1,143	1,376	59	
SUDBURY					16.000	0.0	
Chutes		64,756	58,819	11,763	16,008	92	
airbank		57,948	70,048	5,545	11,025	132	
Killarney		45,524	58,065	3,143	5,307	125	
Windy Lake	Recreational Park	71,544	73,483	2,582	6,390	76	
SWASTIKA .							
Esker Lakes		20,261	27,147	3,536	4,336	136	
Kap-Kig-Iwan	Natural Environment	27,684	30,411	3,647	4,163	64	
THUNDER BAY							
Inwood		25,670	61,767	6,794	14,822	60	
Kakabeka Falls		252,125	274,715	21,831	32,742	140	
Middle Falls		35,426	15,895	3,166	4,443	20	
Sibley	Natural Environment	45,885	55,135	3,977	17,136	195	
TWEED							
Black Lake	Recreational Park	54,089	61,495	8,545	12,988	200	
Bon Echo		134,769	138,991	17,767	25,665	400	
Lake on the Mountain		-		-	_	-	
Lake St. Peter		29,639	26,675	2,805	6,867	60	
North Beach		46,477	68,332	27.262	1,643	492	
Outlet Beach		379,271	315,761	27,363	28,304	482	
bandbanks	Natural Environment	45,009	58,299	_		_	
WHITE RIVER		4.47.400	444.604	25 707	12.260	255	
i i	Natural Environment	147,699	111,684	35,727	43,260	355,	
Obatanga		15,300	21,884	10,177	11,566	85	
White Lake	Kecreational Park	. 79,429	74,992	14,057	23,018	225	
PROVINCIAL TOTALS		9.440.211	10.459.936	1,119,912	1,360,639	18.039	3:

ort ns n s)	Picnic Area (Acres)	Museums, Exhibit Centres	Nature, Hiking Trails (Miles)	Boat Launch Ramps	Trailer Sanitary Stations
	7 1 1	M EC - -	27 - - -	X X X	X X X
	10 8 ³ / ₄ 8 ¹ / ₂	- - -	- 1½ -		_ X X
	7 7		2	X X	X X
	10 12 2 100	- - -	1 1 7 —		X X X
	35 30	EC EC	5 4	<u>X</u>	X X
	2 32 6 25	- - - -	- 3½ - 15½	_ _ _ X	X X - X
	10 35 4 5 60 200 40	- - - - - -	- 4 - 2 - -	X X - X X X	× × - × - ×
	43 10 8	EC - -	5 1 ¹ / ₄ 1/ ₂	X X	X X X
	2,3431/2		172½		

PARK MANAGEMENT

Ninety-seven Provincial Parks were in operation during the 1969 park season. This included Cyprus Lake Provincial Park, in operation for its first season. This Natural Environment park contains 1,149 acres situated on the northeast coast of the Bruce Peninsula, about six miles southeast of Tobermory. It contains the spectacular cliffs and vistas of the Georgian Bay coast, made available to visitors from a section of the Bruce Trail, as well as inland lakes, forests and bogs.

A considerable increase in park use was experienced in the 1969 camping season. The number of visitors increased by 10.8 per cent, while the number of campers leaped by 21.4 per cent from that of 1968. This shows an obvious recovering from the previous year's slump of seven per cent in day-use and three per cent in campers, for a substantial net gain this year.

INTERPRETIVE SERVICES

Interpretation of natural and cultural resources to visitors in Provincial Parks is gradually developing into a program of services which is outstanding among comparable North American park systems. The interpretive goals are to transmit information about the environment, primarily to park visitors, and thereby to motivate wise use of resources, stimulate appreciation of park facilities, and enhance the visitors' recreational experience.

Since 1944, when the interpretive program was begun, the annual number of interpretive contacts made with the public has increased to three-quarters of a million individual messages. This spectacular growth has thus been more rapid than the growth in total annual visits to the parks. However, as increasing numbers of outdoor recreationists come from city centres, they require additional informational-educational services for their proper orientation to park facilities and their enjoyment of the outdoors.

Moreover, in serving sheer masses of recreationists, the Department must seek public participation in protecting the public trust; and interpretive messages have proven to be an important means of tackling conservation problems such as wilderness littering, overcrowding, and vandalism. By interpretive services, increased protection has been won for fragile components of the park environments, and current projects are helping to combat abuse of wild flowers and threatened faunal species.

Important program additions in 1968 include the development of an audio-visual program on wilderness camping behaviour for presentation at Quetico and Algonquin Parks. This film has been directly related to a substantial decline in interior littering in both parks.

Services were expanded in Parry Sound Forest District with the appointment of a planner-naturalist to the park staff; and seasonal staff members participated with permanent interpretive naturalists in a five-day training session intended to upgrade interpretive skills.

Research data was gathered in an ambitious program of environmental analysis for both parks facility planning and interpretive messages. Beside an intensive, broadly-based data collection program expanded for Algonquin Park, historical and archaelogical material was researched at each of the following parks and reserves: Lake Superior, Mattawa River, Samuel de Champlain, Fort La Cloche, Methodist Point, Sibbald Point, Peterborough-Petroglyphs, Darlington, and Polar Bear.

NATURE RESERVES

Nature reserves are Class V parks as described under the Park Classification System (1967), or they may be zones within other classes of park. These designated reserves will be living museums, encompassing both unique and representative segments of our flora, fauna, geology and physiography. Nature reserves serve an important role in research and education when such use does not damage the values the reserve was established to protect.

To assist the Branch in this program, there is an advisory committee to the Minister, consisting of experts in all fields of the natural sciences and representing naturalists in the public sector. This committee is working with the Branch to establish an outline of a system of nature reserves, an indication of the broad fields of interest and study which should be represented. They also concern themselves with recommending specific areas which should be established.

A start was made, in the summer of 1969, on the natural surveys of park areas with an ecologist spending the summer investigating, identifying, and reporting on potential Natural and Primitive Zones in Algonquin Park, thus contributing to the data necessary for the planning of that park.

SNOWMOBILE TRAILS

Ontario Provincial Parks were made available, where possible, for snowmobiling during the winter of 1969-70. It was necessary to prohibit or restrict the use of snowmobiles in certain parks to protect the wilderness environment, deer wintering areas, or fragile ecological, geological and historic areas within these parks. Damage to landscape and dune stabilizing plantings, young forest growth and lawns was reported in some parks, particularly in southern Ontario, due to insufficient snow cover or heavy use. Damage was

also incurred when snowmobiles entered prohibited zone including nature trails and other areas of fragile groun cover.

Snowmobiles were prohibited in Sandbanks, Serper Mounds, Killbear and Springwater Provincial Parks.

Snowmobiles were restricted in:

- Algonquin Provincial Park—to travel only on Cano Cache, Bonita, South Tea and Smoke Lakes.
- Lake Superior Provincial Park—to travel only on the Midjin Lake road and Midjin, Magwon, Almont Wabigoon and Mirimake Lakes.
- 3. Quetico Provincial Park—to travel only on those lake forming the north and south boundaries of the par

Specific trails for snowmobiling were marked out in number of parks in central and southern Ontario. In add tion, the cross-country trails in the Coldwater and Par Sound areas received increased use.

ACCESS POINTS

During 1969, maintenance and improvements were carrie out on 500 public access points across the province. The facilities are intended to supplement the provincial pasystem in providing access to a greater number of our major waterways and include boat launching ramps, vehicle paring areas, toilets and garbage receptacles. No overnig camping or prolonged boat dockage is permitted at the locations which are serviced regularly throughout the surmer season.

Improvements, completed on 230 separate sites in 196 included the construction of 59 boat ramps, 24 loading docks and 39 toilets. Protection of our total environment a major consideration in the development and maintenance of access points. These maintenance crews collect garbay wherever it is encountered on Crown lands.

CANOE ROUTES

The program of documenting, mapping and improving portages on major canoe routes across the province w continued in 1969. A considerable number of detailed rou descriptions are now available for both northern and ce tral Ontario.

HIKING TRAILS

The existing hiking trails established on Crown lands a receiving an increasing amount of public use, and adtional trails are in the planning stage. Three overnight to shelters were constructed along the Bruce Trail on the Niagara Escarpment. A number of trails, with picnic stage and toilets, were developed on Agreement Forest areas.

OREST PROTECTION BRANCH



urbo Beaver dropping fire retardant.

Forest Protection Branch is divided into three sections with duties and responsibilities as follows.

FOREST PROTECTION

Forest Fire Control: Administration of The Forest Fires Prevention Act; organization of fire districts and the fire warden system; supervision of fire control planning and preparedness; fire prevention programs including a system of travel, fire and work permits; co-operative fire prevention and control agreements with municipalities, railways, forest industries and other agencies; detection of forest fires, and fire danger warnings; training of staff and co-operators in fire control techniques; prescribed burning; co-ordination of fire suppression; and movement of resources and emergency arrangements.

Forest Pest Control: Prevention and control of damage by insects, diseases and other pests affecting forests under Department management; and advisory services.

Communications: Planning, installation and operation of radio, telephone and teletype services for fire control and other Department requirements; and construction of specialized communication equipment.

AIR SERVICE

Operation of a fleet of aircraft to meet flying requirements of the Department and special needs of other Government Departments; selection and training of pilots and air engineers; deployment of aircraft and crews; establishment of airbases, fuel distribution and caches; selection of aircraft equipment and development of special equipment; leasing and disposition of helicopters and other aircraft; checking pilot proficiency; and maintenance of aircraft.

ENGINEERING SERVICES

Planning mechanical equipment programs, budgetting for new and replacement equipment, standards for operation and maintenance of mechanical equipment, and vehicle fleet management; design, construction and maintenance of dams, docks, and other hydraulic structures, channel improvement, and dredging; co-ordination and planning of capital work program and maintenance of facilities; and sign program.

FOREST PROTECTION SECTION

FOREST FIRE CONTROL

The 1969 fire season followed the two relatively light 1967 and 1968 seasons. Review of the statistics show that the 1969 season ranks fifth in the least number of fires since the inception of formal record keeping in 1917. The second lowest, total acreage burned and second lowest, average fire size were also recorded for the season.

Rain occurred more often and in greater amounts than normal throughout the provincial fire district. Fire danger ratings did not reach high and extreme readings for extended periods. The over-all result was that fires which did occur did not spread rapidly and, with very few exceptions, did not present any control problems. Problem fires occurred in the Northwestern Region during the last week in May during one of the few periods when burning indices were high to extreme.

FOREST FIRE CAUSES AND OCCURRENCE

A total of 901 fires burned 6,134 acres during 1969. This is the least number of fires since 1954. The acres-burned total is the lowest since 1959. Damages were correspondingly low.

People were responsible for 78 per cent of the fire starts. These fires burned 30 per cent of the total acreage. Lightning accounted for 22 per cent of the fire ignitions, burning 70 per cent of the total acreage. These figures compare with the historic average of 80 per cent of the fires in Ontario being caused by human carelessness.

The peak occurrence period was the months of April and May during which 39 per cent of the fires occurred. During this period, 90 per cent of the total acreage was burned. The occurrence and acres-burned are well below the 10-year average of 1,326 fires and 139,621 acres. The 1969 figures are also well below the previous five-year average of 1,342 fires and 22,683 acres.

FOREST FIRE CONTROL OPERATIONS

Detection. The evaluation of detection systems continued in the fire districts. Seven forest districts used aircraft as the primary means of detection supplemented by towers in high-value areas requiring constant surveillance. This system has proven effective in the study areas.

A portable fire tower was purchased, and evaluation of this equipment for detection in high-value or risk areas was begun. Further testing will be carried out during the 197 season.

Suppression. The fire control philosophy of early detection and fast, hard hitting initial attack aided by the poor burning conditions, produced a provincial, average fire size of 6.8 acres. This average is considerably less than the provious 10-year average of 10.8 acres.

Only two fires reached a final size of more than 500 acre Approximately 54 per cent of the fires were extinguished less than one-quarter acre in size.

The basic Lands and Forests suppression force is 12 five-, or seven-man-unit crews supported by thirty-eig fire bombing aircraft. This force took initial action on 64 fires this season. Municipal groups, organized under the fi warden system, handled 119 fires. The general public too initial action on 128 fires with the remaining 13 taken ca of by timber licensees or other agencies.

Fire bombing aircraft were successful on many fires. The provided the initial attack on 61 fires and supported the action of ground crews on a great proportion of the fire. The initial attack capability of these aircraft make it posible to effectively hold a fire until ground crews can beg to work on the fire edge.

FIRE CONTROL TRAINING

Fire Suppression Course I was held on a Regional level against year. Sixty-three personnel successfully completed the course this year, bringing the total number of graduates that since 1962 when this course was first offered.

Fire Suppression Course 2, a course in advanced fire behavior, organization and management, was organized an presented to senior fire control personnel in the Provinc A total of thirty-three people, consisting of forest protetion supervisors, fire control officers, chief rangers and heap office operating personnel, successfully completed the course. Plans are being made to expose more fire contropersonnel to the course next year.

The portable fire simulator, designed and built by Landand Forests staff, was introduced to the personnel attendir Fire Suppression Course 2. Four programs were presente to the candidates in the first use of this training aid f course work. Arrangements are being made to acquire two more portable simulators and continue the development the present one during the 1970-71 fiscal year.

Staff attended courses in the United States in fire ma agement, and one man attended a three-week course in a craft management in fire control sponsored by the Unit-States Forest Service.

OREST FIRES BY CAUSES, 1969		
eneral Causes	Fires	Acres
ghtning	202	4,278
dustrial-Logging	7	10
dustrial-Other	21	28
ecreation	256	233
ailway	78	522
esident	128	515
cendiary	9	56
iscellaneous	191	473
nknown	9	19
TATC	901	6,134
ources of Ignition		Fires
ghtning		202
moking Material		212
amp Fires		139
rass Burn		32
ubbish Burning		31
nknown		27
latches		65
rush Burn		23
arbage Dump Burn		24
ght-ot-way Burning		6
rake shoe		34
iesel Locomotive		21
usee		8
e Burning		1
ructural Fire		14
ower Line (Short Circuit)		13
oarks from chimney		1
reworks		18
ower Saw		3
echanical Equipment		7
oark from Burner		1
rning Bulldozed Piles		1
plosives		- 1
umped Live Coals or Ashes		3
iscellaneous (known)		13
escribed Burning		1

901

FIRE PREVENTION

Several forest districts in the province combined resources to present information on fire conditions and danger to the public over C.B.C. television stations from Winnipeg, Timmins and Barrie. The radio and press media were used to convey any local forest fire information of interest to residents in their coverage area.

Investigation of a different type of prevention poster, using symbolic representation, was undertaken. New ideas

Responsible Groups	Fires
Lightning	202
Fisherman	118
Children	85
Car Passenger	79
Unknown	43
Berry Picker	23
Camper	30
Resident Rural	53
Hunter	15
Farmer	14
Private Cottager	33
Hiker	27
Resident Urban	3
Other Industrial Employee	4
R. R. Section Crew	6
R. R. Train Crew	63
R. R. Work Crew	5
Canoeist	10
Picnicker	10
Train Passenger	1
Indian (on reserve)	7
Woods Industry Employee	5
Land Survey Party	Ī
Trapper	4
Prospector	
Mining Employee	2
Hydro Employee	5
Highway or Road Employee	4
Municipal Employee	2
Military	1
Miscellaneous	34
L & F Employee)
Federal Govt. Employee	1
Youth Groups	3

901

for prevention work were solicited from field staff, and the result of both of these undertakings should be available for partial use during the 1970 fire season.

The four-minute C.B.C. radio program on Lands and Forests activities, broadcast on their northern network, provided a medium to advise the public in that area of the provincial fire picture and the forecasted fire danger index.

Legislation, establishing restricted fire zones, was enforced on a seasonal basis in the Wawa fume-damaged area of White River Forest District. During one of the rare, high fire danger periods, a restricted fire zone was imposed in Fort Frances Forest District for a period of one week.

DEVELOPMENT WORK

Retardant Chemicals. The planned operational evaluation of the aerial delivery of fire retardant chemicals was affected by the light fire season. Work progressed on the mixing and storage of these chemicals for delivery by Department float-equipped fire bombing aircraft, and evaluation drops were made on test fires with satisfactory results. Further operational studies will continue during the 1970 season.

Field tests also proved the usefulness of long-term retardants delivered from ground tankers.

FOREST FIRES BY DISTRICTS, 1969

Forest District	Fires	Acres
Sioux Lookout	24	53
Kenora	57	130
Fort Frances	29	616
Port Arthur	58	3,080
Geraldton	30	235
Kapuskasing	16	24
Cochrane	13	49
Swastika	27	51
White River	25	22
Chapleau	29	10
Sault Ste Marie	59	103
Sudbury	162	744
North Bay	58	276
Parry Sound	83	136
Pembroke	64	328
Tweed	81	167
Kemptville	13	10
Lindsay	54	43
Lake Huron	6	48
Lake Simcoe	13	9
TOTAL	901	6,134

FOREST FIRES BY MONTH, 1969

Month	Fires	Acir
April	128	94
May	219	4,72
June	84	13
July	142	(
August	227	17
September	82	7
October	18	
November	1	
TOTAL	901	6,13

FOREST FIRES BY SIZE, 1969

Size	Fi
¼ Acre and under	4
Over 14 acre to 10 acres	3
Over 10 acres to 100 acres	
Over 100 acres to 500 acres	
Over 500 acres	
TOTAL	C

FOREST FIRES BY MEANS OF DETECTION, 1969

Means of Detection	F
Lands and Forests Fire Tower	
Lands and Forests Aircraft	
Commercial Aircraft	
Private Aircraft	
Lands and Forests Personnel	
Other Provincial Government Employee	
Outside Agency Fire Tower	
Other Public	

couthern Ontario Forest Fire Hazard Study. An investigation of the changes in the forest fire hazard, in the portion of the province south of the provincial fire district, was undertaken. The result was a report and a documented set of slides on the potential fire hazard in the southern part of Ontario.

Canadian Fire Weather Index. A new index to measure fire langer has been developed by the federal Department of fisheries and Forestry. Ontario took part in the field evaluation of this new system by calculating and recording the fire veather stations throughout the province for the 1969 fire eason. Reaction to the new system was favorable, although ire occurrence during the summer was light and no real apportunity to evaluate fire behavior under the new index values existed.

RESCRIBED BURNING

Consistent with the expanding prescribed burning program the province over the past few years, seven districts caried out prescribed burns this year. A total of 5,933 acres were burned by prescribed fires for silvicultural treatment and slash hazard reduction.

STATEMENT OF FIRE DAMAGE, 1969

orest District	Mer- chantable Cu. ft.	Forest Losses \$	Immature Losses \$	Non Forest Losses \$	Total Losses \$
ijoux Lookout	11,780	670	_	_	670
Kenora	4,420	197	338	265	800
ort Frances	967.000	44,700	75	1.255	46,030
Port Arthur	1.426.979	53.325	18,875	379	72,579
Geraldton	43.605	1.279	852	499	2.630
Kapuskasing	-	_	_	180	180
Cochrane		_		_	_
wastika	_	_	50	_	50
	4.265	92	212	592	896
White River	4,203		12	_	12
Chapleau			40	290	330
ault Ste Marie	11.306	535	5.675	847	7,057
Sudbury	11,300	333	25	O 47	25
North Bay		_	118		118
Parry Sound	-	205		232	2,919
'embroke	65,200	285	2,402		2,919
weed	300	22	12	27	67
Kemptville	_	2	65	_	0,
indsay	-	_	200	57	257
ake Huron	_	-	_	_	-
ake Simcoe	_		75	_	75
OTAL	2,534,855	101,107	29,026	4,623	134,756

GENERAL

Nozzle crew competitions were held on a regional basis for the first time this year. The purpose of the competitions is to maintain a high level of proficiency in preparedness and fire line construction and to encourage a team spirit among the fire fighters of the Department. The regional winners

Northwestern Region — Kenora District Northeastern Region — Swastika District Southern Region — Tweed District.

FOREST PEST CONTROL

SURVEYS

Outbreaks of the spruce budworm, the most destructive forest insect in Canada, occur periodically, and over the past two or three years there have been indications of a general upswing in populations throughout eastern Canada. In Ontario, this has been evident west of the lakehead in Thunder Bay Forest District, at several locations throughout northeastern Ontario, and down the Ottawa Valley.

In northwestern Ontario, as reported last year, the area sprayed in 1968 had a surviving population of budworm in the core area near Burchell Lake, and at French Lake in the northeast corner of Fort Frances Forest District. These areas were re-sprayed in 1969 (see section on control). In addition, a new area of infestation of about 4,000 acres was discovered south of Northern Light Lake near the Minnesota border. It is believed that this new infestation may be associated with the widespread infestation in Minnesota.

In northeastern Ontario, the most important of many widely scattered infested areas was a block of almost 2,000 square miles, north and northeast of the Town of Chapleau. Because there was not any hope of justifying aerial spraying to prevent the development of infestations throughout the vast area of northeastern Ontario, largely because of the cost/benefit relationships resulting from low over-all balsam and white spruce values, the area is being studied from the standpoint of future spraying to keep strategic areas of trees alive and green. Some selective spraying may be necessary in 1970 to prevent serious damage to valuable stands which will have had three years of feeding by the budworm. Forecasts are for expanded and intensified infestations in 1970.

In southeastern Ontario, the spruce budworm caused noticeable defoliation of white spruce and balsam trees throughout many areas of the Ottawa Valley, in total almost 1,200 square miles. One of the areas infested is a portion of the Larose Forest, southeast of Ottawa, containing several hundred acres of valuable white spruce stands. Because of the extent of defoliation already present, this area is being studied for possible spraying in 1970.

Epidemics of the jack-pine budworm occur frequently in northwestern Ontario, but fortunately the insect has not had a history of causing serious damage to commercial stands of jack pine in that area. In 1969, the current infestation in the northwest declined to an insignificant level. Infestations in the east are much less frequent, but the current epidemic in central and eastern Ontario is perhaps the most severe on record. In view of forecasts for continuing high populations during 1969, some spraying was necessary to avoid serious damage and mortality of jack-pine stands. Except in the areas sprayed, continuing high populations are forecast for 1970, particularly in the French River-Lake Nipissing area, and in the Lake Traverse area of Pembroke Forest District.

The forest tent caterpillar continued to defoliate stands of poplars west and north of the Town of Fort Frances, covering an area of more than 400 square miles. The infestation along the southern portion of Sault Ste. Marie Forest

District declined to an area of 200 square miles, and this in festation is expected to die-out in 1970.

The European pine sawfly did not add significantly to the main body of its range in southern Ontario, the eastern boundary being a line roughly from Midland to Kingston The insect also occurs on Manitoulin Island, and on orna mental plantings in the Cities of Sault Ste. Marie, North Bayand Ottawa.

The saddled prominent is a native insect which in the past has rarely occurred in serious outbreaks in Ontario. The current series of outbreaks in sugar maple stands in many areas of southern Ontario, the most severe on record here, were described in some detail in last year's report For the most part, infestations in Lake Huron Forest District declined, and remained about the same in Lake Simco Forest District, while new small infestations appeared in the southern part of Lindsay Forest District, and the large in festation (900 square miles) in Parry Sound Forest District spread westward and northward but declined along the eastern boundary. This insect is subject to effective natural enemies, including parasites, diseases and predators, and therefore outbreaks usually do not persist for more than two or three years in any locality.

The Dutch elm disease, as noted last year, is now well established as far north as Sudbury and Sault Ste. Marie, and further spread northward, where elm trees are widely scattered in the forest, will be slow. Consequently, there was no significant change in the geographic range of Dutch elm disease in 1969, but where it does occur the trees were killed at an accelerated rate.

During 1969, there was no change in the status of two relatively new disease problems—the annosus root rot and the scleroderris canker.

Extensive damage of an uncommon type occurred in late August when a wind storm caused a massive blowdown north of the Town of Hearst. The blowdown swath was 10 miles wide and about 65 miles long. Progress is being made in salvaging the timber.

CONTROL OPERATIONS

As mentioned in the 1968 report, a residual population of spruce budworm remained in the core area of the large Burchell Lake - Shebandowan outbreak sprayed in June 1968. In 1969, a block of 22,000 acres was sprayed with feni trothion, about 8,400 acres of which received two applications, each at 5.7 oz. per acre, and the remainder received one application. The 5,000-acre infestation at French Lakewas also sprayed twice at the 5.7 oz. rate. The sprays were fully effective in bringing the persistent infestations under

ontrol, and no defoliation in these areas is forecast for 970.

Spraying, to control the jack-pine budworm in valuable ands, was conducted in two locations in Sault Ste. Marie prest District, one of 2,000 acres of mixed red and jack ine plantations in the Kirkwood Management Unit, and ne involving 2,000 acres of natural jack pine stands at dount Lake. A single application of fenitrothion was aplied at 4.3 oz. per acre. The Department also assisted in the spraying operations against the jack pine budworm on the Petawawa Forest Experiment Station and on the Canaian Forces Base (Petawawa).

The regular program to control the white pine weevil ontinued in 1969, with approximately 4,600 acres being reated with aerial and ground spraying equipment, and by and-clipping and burning infested leading shoots. When praying is conducted, the insecticide used at present is nethoxychlor.

Almost 9,000 acres of pine and spruce plantations were brayed for control of sawflies, principally the red-headed ine sawfly, the European pine sawfly, the jack pine sawfly nd the yellow-headed spruce sawfly.

For many years, the Department has used, and has encuraged private growers to use, a special virus disease to ontrol the European pine sawfly in situations where this iological control agent can be used efficiently. To date, be Department has been the principal source of supply of the virus, and in 1969 a special effort was made to build up reserves through collecting the material in the field. Sufficient virus was collected to spray 2,000 acres.

About 500 acres of sod-covered sites were treated for ontrol of white grubs at time of tree planting, and 600 cres of similar sites were treated for control of mice where these pests threatened the survival of young plantations.

The major tree-killing disease in the forests of Ontario is be blister rust of white pine. A substantial disease-control fogram has been in progress for several years in specific eas managed for production of white pine. The disease is partrolled by using the herbicide 2,4,5-T as a spot spray to all the other plants (wild currants and gooseberries) necestry in the disease's life cycle. In 1969, about 9,500 acres of gh-value young white pine stands were protected against e rust in parts of the Sault Ste. Marie, North Bay, Pemoke, Lindsay, Tweed and Kemptville Forest Districts.

The entrance of annosus root rot into southern Ontario antations is prevented by the application of sodium nitrite the freshly cut surface of stumps during thinning operators. In 1969, some 1,800 acres were treated in this way.

COMMUNICATIONS

The Department's program of change-over, from A.M. to S.S.B. (Single Side Band) High Frequency communications, progressed to the point where all District Office radio stations using H.F. are equipped. Fourteen transceivers in the power range 100-150 watts P.E.P. (Peak Envelope Power) are in operation. Additionally, a 1000-watt P.E.P. S.S.B. transmitter and associated receivers (6) installation is in operation on an evaluation basis at the Control Radio Station at Maple. S.S.B. installations were effected in several more of the Department's Turbo Beaver aircraft and, by spring of 1971, all 28 machines will be fitted with 10-channel, 100-watt P.E.P. equipment.

V.H.F. "problem area" coverage was greatly improved in the Kapuskasing, Cochrane and Geraldton districts by installations of 270-290 foot towers at all points and the use of collinear antenna arrays. A new headquarters installation was made at Terrace Bay using a 270-foot tower and a collinear antenna system. V.H.F. radio-telephones were installed at two new Provincial Parks near the Ontario/Quebec border and two more installations made at new offices in Simcoe and Fonthill in southern Ontario.

Major expenditures included 73 V.H.F. mobile radiotelephones with power outputs of three to 50 watts for use by all services, five Biotelemetry receivers for use by Fish and Wildlife Branch, and the radio equipment for use with an experimental, remote weather reporting system.

Fire in the forest. Photo by T. Jenkins.



AIR SERVICE SECTION

During 1969-70 the aircraft replacement program included the purchase of a Series 300 Twin Otter water bomber and replacement of the Series 100 Twin Otter Business machine with a new Series 300 Twin Otter with greater speed, pay load and range capabilities.

The Section currently maintains a fleet of 40 aircraft, operated out of 26 bases, to meet flying requirements of the Department and special needs of other Government departments.

The Beechcraft Duke and one Turbo Beaver were equip-

ped during 1969 to carry infra-red fire detection equipment

Total flying time for the year accumulated on Department aircraft was 15,797:05 hours. Total passengers carried were 36,080, and the total load carried was 13,250,53 pounds.

Mercy and emergency flights, totalling 161:40 hour were carried out by aircraft and helicopters. There were requests from other provinces for assistance during firemergencies under co-operative mutual aid agreements.

Five Bell 47G4 model Helicopters were leased from Ma 1st to September 30th to provide transportation in fore fire fighting.

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS 1969-70

		Commercial			
	Lands & Forests Aircraft	Fixed Wing	Helicopter (Contract)	Helicopter (Other)	Total
Detection	. 1,689:50	1,777:07	-	-	3,466:57
Suppression	544:35	118:43	897:25	23:00	1,583:43
Servicing	142:45	_	7	_	142:45
Water dropping	447:20	2:45	_	_	450:05
Fire Ranging, Total	2,824:30	1,898:35	897:25	23:00	5,643:30
Timber	1,472:30	126:24	326:10	13:50	1,938:54
Fish and Wildlife	4,324:30	310:26	422:00	37:55	5,094:51
Lands	678:20	66:30	201:50	12:15	958:55
Parks	727:45	5:30	67:25	_	800:40
Research	334:25	_	5:15		339:40
Interdepartmental	977:00	179:55	:35	_	1,157:30
Administration	4,458:05	5:10	270:45	44:15	4,778:15
Total	15,797:05	2,592:30	2,191:25	131:15	20,712:15
		Commercial			
	Lands & Forests Aircraft	Fixed Wing	Helicopter (Contract)	Helicopter (Other)	Total
Breakdown of administration					
Mercy Flights	116:20	-	1:05	44:15	161:40
Ferrying & Instruction	260:25	_	159:10		419:3
Entomology	136:05	-	44:30	-	180:3
Forced Landings & Operation	704:25	-	-	-	. 704:2
Transportation	3,240:50	5:10	66:00	-	3,312:0
Administration, Total	4,458:05	5:10	270:45	44:15	4,778:1

MERCY AND EMERGENCY FLIGHTS, 1969-70

Pate	Aircraft	Pilot	Journey	Time	Reason
pril 21, 1969	CF-OPA	THOMPSON	Spruce Lake- Sault Ste Marie	:45	Man with severe abdominal pain
May 3, 1969	CF-OET	BEAUSHENE	Downsview- Sault Ste Marie	4:25	Ill infant and nurse
1ay 7, 1969	CF-ODP	BURTT	Port Arthur- Winnipeg	6:55	Ill woman to Winnipeg for neurosurgery
1ay 21, 1969	CF-OEJ	BEAUSHENE	Spruce Lake- Sault Ste Marie	:5()	Man with hand injury to hospital
aly 3, 1969	CF-OEL	GOOD	McKenzie Lake- Port Arthur	1:50	Man with compound fracture to hospital
ıly 3, 1969	CF-OEP	McLELLAN	Ice Chest Lake- South Porcupine	:25	Man with broken back
ıly 15, 1969	CF-OPA	KIRK	Kirk's Cove- Belleville	2:10	III man to hospital
ug. 1, 1969		GOOD	McKenzie Lake- Sioux Lookout	1:00	Victim of car accident
ug. 2, 1969	CF-OEL	GOOD	Sioux Lookout- McKenzie Lake	:55	Return trip with O.P.P. constable
ug. 3, 1969	CF-ODL	CAMPBELL	Hollow River- Bobs Lake	1:00	Boy with back injuries
ug. 4, 1969	CF-ODL	CAMPBELL	Bigger Lake- North Bay	1:10	Man with back injuries
ug. 17, 1969		HOWE	Port Arthur	2:20	Search for American boat reported missing
ug. 14, 1969	CF-OEV	CROAL	Big Crowe Lake- Pembroke	1:35	Man with collapsed lung
pt. 28, 1969	CF-OEO	TURCOTTE	Gogama-Sudbury	:45	III woman
ct. 4, 1969		TURCOTTE	Cryderman Lake- South Porcupine	:45	Man who was shot in the head by high-power rifle
ct. 12, 1969	CF-OEY	BURTT	Pine Point- Port Arthur	2:05	Man who suffered heart attack
ov. 3, 1969	CF-OEI	CALVER	Little Lake- Parry Sound	:50	Man who suffered heart attack
pt. 1-9, 1969	Various aircraft		Northwestern and Central Ontario	80:45	Search for missing private aircraft
eb. 22, 1970	CF-OET	BEAUSHENE	Sheldon Lake- Sault Ste Marie	:45	Man with broken leg
lar. 11, 1970	CF-OFV	HOWE	Armstrong-Collins- Sioux Lookout- Collins-Armstrong	2:25	Woman struck by a train
tar. 15, 1970	CF-OET	THOMPSON	Sault Ste Marie- North McKinnon Lake- Sault Ste Marie	:40	Man who suffered heart attack
lar. 25, 1970	CF-OET	PHILLIPS	Sault Ste Marie- Ramsay Lake- Sault Ste Marie	2:00	Man who suffered heart attack

MERCY AND EMERGENCY FLIGHTS, 1969-70

Date	HELICOPTERS (Contract)	Pilot	Journey	Time	Reason
Oct. 19, 1969	CF-YOQ	ZIMMER	Dog Lake-Thunder Bay	1:05	Man with shotgun wounds
	Total			1:05	
	HELICOPTERS (Non-Contract))		Time	
	Mercy Ambulance Service—Moosonee			44:15	
	Total			44:15	

ENGINEERING SERVICES SECTION

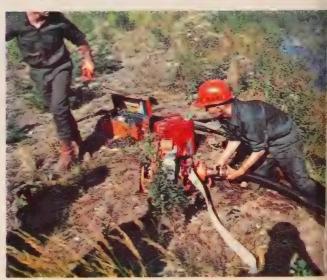
Engineering Services Section was created April 1, 1969, out of the Plant and Equipment Unit existing within the Protection Section, and supplemented by the transfer of staff from the former Water Control Branch, Department of Public Works.

The objectives of the Section are those implied by the name—to provide services to the operating branches and districts in those areas requiring professional engineering or engineering technology application.

CAPITAL WORKS MAINTENANCE OF FACILITIES

Co-ordination and planning of the major capital works program of the Department was effected through liaison with the Department of Public Works, Treasury Board and affected branches, districts and regions. The projects included a new district office at Sioux Lookout; new Chief Ranger headquarters at Terrace Bay, Ignace, Bancroft, Cochrane and Kenora; renovations to the Chief Ranger headquarters at Pembroke; a fish research and experimental hatchery, fish production hatchery, tree nursery office and shipping shed at Dryden; and miscellaneous construction and building renovation.

Setting up pump in nozzle crew competition.



The new dam on Malcolm Lake in Tweed Forest District. Photo by W. Lenson.

Planning and budgeting for maintenance and minor contruction of buildings and other facilities, under the minor capital works program, was carried out. District staff or ender procedures were utilized on projects other than essential services provided by the Department of Public Vorks. Projects ranging from painting buildings, repairing toats and tower cabins, to construction of gasoline storage buildings, junior ranger camps and staff quarters, were unded.

MECHANICAL EQUIPMENT

approximately 1,300 vehicles of all types are in use by the Department as well as tractors, loaders, graders, skidoos, etc. A planned equipment program and an established policy with respect to repair of all mechanical equipment, equisition and replacement, equipment markings and colour, licensing, insurance coverage and bulk purchasing, have become a necessity and forms an integral part of the ection's responsibility. In addition, minimum standards for operating condition and general appearance of motor rehicles and trailers have been established to ensure safe, efficient and dependable operation.

A vehicle fleet management program has been implemented in three districts as a pilot study designed to provide management and operating personnel with computer print-outs of management information such as vehicle personnel, frequency of repair, annual repair costs and accident and replacement information. The information is designed primarily to assist in framing an acquisition and eplacement policy based on statistical information and hould lead to reduced out-of-service time and operating ailures. In addition, it will have the capability of assisting minimizing operating and maintenance costs; it will rovide a complete inventory and form an effective tool or establishing vehicle complement and distribution.

IGN PROGRAM

he Section co-ordinates the Department sign program in coordance with policy established by the Sign Committee. In type, quality, colour, symbols, production and erection pecifications are being standardized to achieve public actual actual



WATER MANAGEMENT ENGINEERING

Of increasing importance and concern are engineering projects related directly or indirectly to water use and management. Projects undertaken include pre-engineering, design, construction and maintenance of dams, docks and navigation locks and other hydraulic structures or facilities as well as improvement to flow channels and dredging.

PRE-ENGINEERING SURVEYS AND DESIGN

Pre-engineering surveys permitted completion of designs for all dams and docks constructed, as well as a boat walkway in Kenora district, a fishway at Southampton, the Gananoque Wildlife Management Area, hydraulic parts of hatcheries at Pembroke, Hills Lake, a sheet pile retaining wall at the Fisheries Research Station, Wheatley, and a pressure-treated timber dock at Rondeau Provincial Park.

CONSTRUCTION

Construction staff completed the construction of water control dams located at McGraw Falls, Remi Lake, Clayton Lake, Round Lake, Washagami Lake, Wakami Lake, Malcolm Lake, McCarrol Lake and at McNamara Lake. In addition, a dam on the Black Sturgeon River damaged by flood waters was partially re-constructed, and a dock for the use of our air services was constructed at Hayes Lake.

Construction was commenced on water control dams at Omemee, LeGrous Lake and White Lake. At Southampton, construction started on a lamprey control dam known as Denny's Dam which contains a lamprey-proof fish ladder. The cost of this project is being shared equally by Ontario and Canada.

MAINTENANCE

Maintenance of hydraulic structures and docks were scheduled on the basis of condition determined from inspection and reports submitted from districts and included the following:

DAMS Noganosh Lake **Baptiste Lake** Baysville Opeongo Lake Whitney Dutchman Naiscoot River Gooseneck Midhurst Holding Pond Ranger Lake Duncan Lake Raven Lake Aylen Lake Paudash Lake Marie Louise Lake Huntsville Lyndhurst Mazanazhing Lake Dollars Knoepfli Wren Lake Lake Dore LeGrous Lake Harris Lake Lauzon Lake

DOCKS

Air Service, Toronto Port Carling Rondeau Provincial Park

LOCKS

Port Carling Magnetawan

IMPROVEMENTS TO FLOW CHANNELS

Improvements to flow channels, by clearing debris, floatin bogs, dredging, widening and deepening of flow channel was carried out to increase efficiency in discharging wate from Department-operated dams, to improve flow be tween controlled waters, or to decrease downstream flooding resulting from the Department's operation of a dam This year, major projects were undertaken at Doe Lake Bernard Creek, Boyne River and the channel connectin Crane and Little Clear Lakes, while debris and floating bog were removed at other dams.

INSPECTION

Of the 250 dams the Department owns and operates, te per cent were inspected, either as a result of requests of expressions of concern for the safety and protection of downstream interests, or as a matter of routine. Report were prepared and recommendations made to either repart or proceed to construction at some future date in each instance.

ENGINEERING CONSULTATIONS

The section provides engineering consultation for desig construction or reconstruction of Departmental facilitie Engineering studies and reports are provided by staff, or building the services of consultants specializing in give areas. Specialists in ground water supply, soil analysis ar aerial surveying were retained for specific projects.

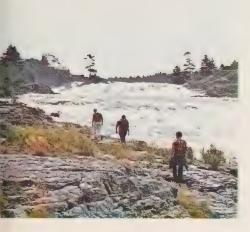
Feasibility studies were undertaken, and reports are cost estimates were prepared on matters related to equi ment, water supply, and outdoor facilities for fish cultustations.

Engineering consultation and construction forces we provided for Parks Branch for the construction of eig comfort stations, one each at White Lake and Neys Provicial Parks, and six at Algonquin Provincial Park.

Windy

Margaret Lake

ANDS AND SURVEYS BRANCH



Moon River, Parry Sound Forest District. Photo by V. Mann.

Lands and Surveys Branch is divided into three sections with duties and responsibilities as follows.

LANDS

Administration of public lands and their disposition by sale, patent, vesting order, quit claim deed, lease, licence of occupation, or land use permit; release of reservations in patents, assignments and cancellations; and reservation of lands for public and government uses.

LAND ACQUISITION AND PLANNING

Recommendations and applications for purchase of private lands for public uses; development and co-ordination of land use plans in all districts for the management of renewable, natural resources; Recreational Land Inventory Sector of Canada Land Inventory; co-ordination of departmental A.R.D.A. projects; and liaison with Department of Agriculture and Food in private lands and with other Departments on the socio-economic implications of land use objectives.

Water Resources Management and approval of dams; licences of occupation for dams; flooding and diversions; issuance and servicing of Water Power Lease Agreements; engineering consultations; feasibility studies, inspections, reports, and access roads.

SURVEYS

Examination, recording and custody of original plans and field notes of restoration of original Crown survey points, retracement and municipal surveys, and surveys of Crown lands for disposition; map compilation; authorization of geographical names; and distribution of maps, publications and copies of survey records.

LANDS SECTION

The primary function of the Section is to provide the means whereby individuals, corporations, provincial government commissions and agencies, and the Government of Canada may obtain the public lands they require for various purposes. The usual requirements are for living space for full time or occasional occupancy and for commercial or industrial uses. Public land may be transferred to private ownership for any purpose except the propagation of the renewable, natural resources administered by the Department. This excludes uses such as tree farming, fish farming and game farming, and disposal of large areas for private recreational use.

To carry out this operation, the Section must study land values, answer enquiries, and plan for the orderly and efficient disposal of lands as nearly as possible in tune with the requirements of the population and the economy. Plans for disposal must also ensure that adequate areas of land are reserved for the use of the public and for government purposes.

Public lands are transferred to private control by sale or rental. The use to be made of the land is always a prime consideration. Except for rental under Land Use Permit, the applicant is required to spend, in most cases, two to ten times the established land value on improvements within a limited time before title passes to him. In some situations, such as where sale is by public auction, the reverse is true. Thus, the actual price of the land is normally considered as secondary to the economic advantages accruing from the new development.

LAND TRANSACTIONS in years ending March 31

	Land Use	Other	
	Permits	Transactions	Total
1970	 4,494	3,334	7,828
1969	 4,930	3,140	8,070
1968	 4,747	2,693	7,440
1967	 4,555	2,756	7,311
1966	 4,382	2,481	6,863

It is noted that there was a decrease in the numbers of Land Use Permits issued during the past year. The increase in land transactions, other than Land Use Permits, was due to the increase in the sale of cottage lots. Considerable public concern has been expressed regarding the sale of cottage lots to residents of other countries. In this connection, a careful review has been made of the patents issued

for cottage properties during the past six years endir March 31, 1970. This review shows that 5,830 patents we issued; 79 per cent of these lots were patents to residen of Ontario, five per cent to residents of other provinces, and 16 per cent to residents of other countries.

During the year, a new policy was approved with respet to the disposal to municipalities of the lands which the require for municipal purposes. Such lands are now transferred to municipal control for a fee of \$100 regardless area or land values.

The program for the development and operation of gabage disposal sites, serving the unorganized areas of the province, was continued and expanded. At the year's enterprovince, was continued and expanded. In co-operation with the local health units, a number of unsatisfactory sith have been closed. Strategically located and well maintained garbage dumps help to alleviate littering on published.

Three new restricted areas were set up to control and regulate improvements on land. One of these in the Shandowan area, west of Thunder Bay, was set up to control residential development in connection with a new mine the area. The other two areas are adjacent to Timmins and Cochrane. They were set up to control to better advantage the fringe development in unorganized townships adjacent to these communities. There are now 15 restricted areas the province having a combined area of more than 3,00 square miles.

LAND ACQUISITION AND PLANNING SECTION

This Section was formed in 1963 to implement the progra announced in the Speech from the Throne in the Fall Se sion of 1962. This program anticipated the expenditure \$200 million over a twenty-year period for the purchase land for recreation, wildlife management, parks, reforest tion and other resource management uses.

Since the inception of the program, 435,647 acres have been acquired by March 31, 1970. During the 1969-70 fisc year, Treasury Board approved 27 projects involving the purchase of 40,802 acres of land. The Ontario Parks Integration Board approved 24 projects involving the purchase 3,826 acres of land. A total of seven leases were acquired in Algonquin and Rondeau Provincial Parks, in keeping wi

ne policy to revert these areas to a wilderness state and to ermit public rather than private use of certain areas.

Included in the land acquisition program are nine projects nat are approved under the A.R.D.A. Federal/Provincial ural Development Agreement.

AND INVENTORY

he Land Inventory Unit continued to carry out an invenory of the lands for the Province for both national and rovincial requirements. The national phase is the joint ederal/Provincial Canada Land Inventory Program which overs the agricultural and marginal agricultural areas of the province.

These lands are described in terms of physiographic and iological features and evaluated for their capability to proide recreational experience, forest and wildlife crops. Field tork for recreation and forestry evaluations were comleted on Agreement area during this fiscal year. Approximately 10 per cent of the Agreement area remains to be overed for the wildlife evaluation.

The cartographic production has been maintained at a igh level, and the following represents a summary of the umber of maps compiled and drafted.

(a)	Canada	Land	Inventory
	Sector		

JCCIOI	map scare			
	1:250,000	1:50,000		
Recreation	8	226		
Wildlife	9	190		
Forestry	11			
b) Ontario Land Inventory				
Sector	Map :	Scale		
	1:250,000	1:50,000		
Land Classification	10	distant.		
Wildlife		188		

1

10

Man Scale

CCESS ROADS

Recreation

Forestry

sprovided for under the provisions of Part 1A of The Public ands Act, thirty-two roads in northern Ontario, comprising 11 miles, have been designated as public forest roads. In dition, three private forest roads of industry, comprising 7 miles, are now under agreement with the Department r the shared cost of maintenance. This provides for the shared cost of these roads. This program will be expanded the next fiscal year as the need develops.

VATER MANAGEMENT

is Unit provides management of water resource through proval of dams under The Lakes and Rivers Improvement

Act; determination of the terms and conditions, and preparation of water power lease agreements under The Water Power Regulation Act; administration of licences of occupation for dams constructed principally for log driving purposes; and administration of the reconstruction of old dams. In addition, special engineering consultation services are provided in fisheries and waterfowl management projects.

SURVEYS SECTION

ADMINISTRATIVE SERVICES

The main responsibilities discharged by the Sub-section are the custody of survey records and the distribution of reproductions for sale to the public and the official use of all government departments, as well as maps and publications produced by the Department, and maps of the National Topographic Series as produced by the federal Department of Energy, Mines and Resources, Ottawa.

An increase of over one-third of the quantity of the Provincial Topographic Series map sheets distributed over that of the previous year was due to the production of seven new sheets as well as seven revised editions. The distribution of the Provincial Territorial Series and miscellaneous maps also increased, due to four maps being produced.

Increased distribution of the National Topographic Series maps, by approximately twenty per cent, is also to be noted due to additional new and revised sheets being produced, as well as a number of the 1:50,000 scaled sheets in east and west halves being combined into a single sheet.

Numerous enquiries for historical and genealogical information continued to be received, and there was a greater number of plans and field notes of Crown subdivisions and retracement surveys, mounted or bound, catalogued and filed in the Surveys Records Library.

The demand for reproductions of plans and field notes also continued to increase over the past year.

CARTOGRAPHIC MAPPING

Lands alienated from the Crown were indicated for the first time on maps of the Provincial Series one-inch-to-two-mile maps. This additional information was introduced to meet the needs of a number of disciplines within and without the Department. A total of eleven maps were produced.

Two maps of the one-inch-to-eight-mile series were revised and improved upon depletion of existing stocks; these were Map 23 "Thunder Bay" and Map 22 "Algoma, Sudbury and Timiskaming".

In addition to regular annual production of Fishing and Hunting Regulation map folders, the Ontario Map Catalogue, listing all maps produced by departments and commissions of the Ontario Government, was compiled, printed and distributed to universities, libraries and federal and provincial government agencies.

One-inch-to-two-mile map series produced: Blind River, Heron Bay, Schreiber, Pukaskwa River, Black Bay, Lac des Mille Lacs, Northern Light Lake, Marmion Lake, Obakamiga Lake, Gogama (3rd edition), and Chapleau (2nd edition).

One-inch-to-eight-mile series produced: Map 22 "Algoma, Sudbury and Timiskaming", and Map 23 "Thunder Bay".

Special mapping produced: Map 3169 "Kenora-Dryden", scale 1:250,000 (at request of District Forester, Kenora); Trent-Severn Waterway (at request of Land Acquisition and Planning Section for newspaper reproduction); French River Watershed (at request of Land Acquisition and Planning Section for report); Map 3869 North Georgian Bay Recreational Reserve (at request of Land Acquisition and Planning Section for report); and Fishing and Hunting Regulation map folders.

THE ONTARIO GEOGRAPHIC NAMES BOARD

The Board is composed of the Surveyor General, a secretary and five other members who have not as yet been appointed. Nomenclature decisions are approved by the Minister of Lands and Forests.

During the 1969-70 fiscal year, a total of 83 maps and charts were edited for nomenclature accuracy which can be broken down by map scales to:

Provincia	l Topographic	Series,	1" =	2 mile	es	. 6
National	Topographic	Series,	1:250	0,000		. 4
National	Topographic	Series,	1:50,	000		.67
National	Topographic	Series,	1:25,	000		. 1
Canadian	Hydrographi	c Servi	ces C	harts		. 5

Five thousand, eight hundred and ninety-six names were examined for the federal mapping agencies through the Canadian Permanent Committee on Geographical Names with 1,435 names being approved, 58 names rescinded, and 32 name applications altered. A total of 917 new cards were added to the geographic names card index.

Also edited were 21 Fishstocking Lists, issued by the Departmental district offices, which resulted in an addition of 263 new names hitherto unrecorded to the files.

Also examined were 37 district-produced maps, the n jority being at the scale of 1'' = 2 miles, which effected the recording on O.F.R.I. base maps a total of 928 preously unrecorded names.

The updating of the card index was continued by recoing the correct latitude and longitude on the name cards.

Over 256 inquiries, from the public as well as within government, concerning geographic nomenclature we answered throughout the year.

DRAFTING SERVICES

The production of township plans by commercial draftic contracts was continued, and twenty Crown Land staplans for land planning and sales and general public pposes were completed to supplement the continuing Epartmental production. Head Office branches and Distributed office activities resulted in the increased preparation of special maps, plans, miscellaneous charts and grapillustrations.

New dispositions of Crown Land continued to be plott and designated on the office plans, as to location and tent, to maintain an up-to-date graphic inventory of t provincial land status.

General drafting activities were considerably increas over the past fiscal year, due mainly to the compilation Crown and alienated lands required to be shown on t Provincial Topographic map series, scale 1" to 2 miles.

LEGAL SURVEYS EXAMINATION

Crown instructions for surveys carried out by Departmen surveyors, as well as for all surveys carried out by privasurveyors under contract for retracement, restoration, su division and inspection programs, are prepared by the Sub-section as well as drafting and plan examination.

Compiled plans, and plans of surveys for alienation Crown land, were examined for compliance with Depa mental policy and statutes. Included are plans of individu cottage lots, commercial or industrial locations, water k and Crown subdivisions. Returns of surveys carried c under instructions, such as retracement, restoration a municipal surveys, which did not lead to alienation, we examined for compliance with statutes and instructions.

Field surveyors, located at Tweed and Parry Sound dirict headquarters, were engaged in surveys for administrative purposes which includes the determination of croachment on Crown Land and the extent of ambiguous Crown grants, retracement, and other miscellaneous siveys.

PERSONNEL BRANCH



taff duties include meeting the public in a reat variety of situations. The view, above, t Orono Forest Station, August 22, 1969, vas taken at the first of the popular Forestry ield Days held for agreement holders (and heir families) under The Woodlands mprovement Act. Photo by T. Jenkins.

Personnel Branch is divided into five sections with duties and responsibilities as follows.

- Employment: Recruitment of staff, including Junior Forest Rangers; recruiting activities at universities and technical schools; job advertising; transfers and promotions; establishment and complement control; and assignment of qualified employees to positions.
- Classification and Job Evaluation: Ensuring that positions are properly classified and recommending the classification of positions; identifying and recording of organization and positions; ensuring that position specifications are produced; classifying positions under the Delegated Authority; and developing class series.
- Training and Special Assignments: Co-ordinating and organizing Department training courses; arranging for employees to attend courses given by outside agencies; liaison with Ontario Forest Technical School and Educational Leave Committee; analyzing Department training needs; evaluating courses; and special assignments.
- Employee Relations: Counselling of employees; improvement of communications between field and head office staffs; investigations of problems relating to personnel; liaison with Staff Relations Branch, Treasury Board and Civil Service Association of Ontario; and maintaining Department program on alcoholism.
- Office Management: Documentation of personnel records; attendance reports and leaves of absence recommendations; processing nominations to staff; transfers; separations; group insurance applications and changes; merit increases; accelerated increases; salary revisions; maintaining personnel files for all Regular and Probationary staff and Group 3 Unclassified; and providing statistical information at the request of other Branches of the Department.

RECRUITMENT

To provide the field and Head Office organizations with qualified professional and technical staff, seven Universities and four Forestry Technician Schools were visited in Canada.

Newspaper advertising was used to cover specialized positions not normally handled by the campus program.

The Junior Forest Ranger program continued to be attractive to 17-year-olds. A total of 1,733 boys was placed in 75 camps in the northern part of the Province.

CLASSIFICATION

A continually increasing number of class specifications are required to be used directly and indirectly in the classification of positions in the Department. In addition to such existing programs as the review of all positions on a three-year rotation basis, and continuous audit to ensure validity and consistency of application, an added responsibility for delegated classification has been assumed under a recent agreement with the Department of Civil Service signed by the Deputy Minister.

The study and development of a proposed new Resource Technician and Resource Technician Senior Series has been completed which will integrate the existing Forestry Technician, Conservation Officer and Ranger series, and if approved, will be implemented.

TRAINING

1969-70 saw the introduction of Supervisory Training Courses and a resultant opportunity for greater participation by field staff. This was done through assistance provided by the Department of Education.

A changing role of the Department of Civil Service, towards the research and development of instrumented training programs, placed emphasis on the need for appropriate development of all staff throughout the Province and not simply in Toronto alone.

Five employees attended the Resource Management Diploma Course at the University of Toronto. Certificate courses in Timber, Fire Suppression, etc., were continued as usual.

To promote sound learning through the good teaching techniques of others, Instructor-Training courses were continued, supplying a broad base of skills which can be usefully tapped as deemed necessary and appropriate throughout the Province.

NEW EMPLOYEES HIRED, 1969-70

	Male	Female	Tota
Head Office	90 146	44 30	13- 170
Total	236	74	310

TOTAL STAFF, MARCH 31, 1970

	Regular	Proba- tionary	Unclassified Staff	Tota
Head Office	725	134	189	104
Field	2037	176	688	290
Total	2762	310	877	394
Total, March 31, 1969	2486	485	904	3,87
Total, March 31, 1968	2,304	490	- 966	3,76
Total, March 31, 1967	2,270	297	777	3,34
Total complement of re tions as at March 31, 19				3,33
Total regular and proba			t March 31,	3,07
Total vacancies in comp	olement	as at Ma	rch 31, 1970	26

PROFESSIONAL EMPLOYEES, MARCH 31, 1970

Foresters	2
Miscellaneous	40
Number of Ontario Forest Technical School	4(
Graduates on Staff	1,08
Number of Licensed Scalers on Staff	9.



portsmen in Ancaster Township meet with conservation officer to hear details of Wildlife Extension Program and to post safety zones around the residences and farm buildings of co-operating landowners. Photo by C. Van Gemerden.

MPLOYEE RELATIONS

new agreement was reached on hours of work for pilots and air engineers during the operating season. Effective communication was maintained with the Staff Relations tranch, Treasury Board and the Civil Service Association of Ontario

A review of existing personnel circulars was started, and ome revised circulars were issued. It is intended that the circulars will become a manual for personnel administraion.

The objective of clear dialogue internally at Head Office, and between the field and Head Office, was pursued, and conditions were improved.

The program of assisting the problem employee was maintained and included such items as financial and emotional as well as alcoholic; at meetings, emphasis has been placed upon the role of supervisor. The results of this program cannot be assessed on a short-term basis but there are indications which support the continuation of such an endeavour.

DISPOSITION OF PERSONNEL

The disposition of senior administrative staff as of March 31, 1970, was as follows:

Deputy Minister: G. H. U. Bayly.

Assistant Deputy Minister: R. D. K. Acheson.

Regional Directors: J. W. Lockwood (North-Eastern); L. Ringham (North-Western); J. W. Giles (Southern).

Branch Chiefs: R. R. MacBean (Accounts); Dr. C. H. D. Clarke (Fish and Wildlife); W. T. Foster (Forest Protection); R. G. Code (Lands and Surveys); G. H. Ferguson (Law); G. A. Hamilton (Operations); P. Addison (Parks); J. M. Taylor (Personnel); Dr. W. R. Henson (Research); A. J. Herridge (Timber).

District Foresters: G. P. Elliott (Chapleau); R. J. Burgar (Cochrane); R. A. Balkwill (Fort Frances); D. E. Gage (Geraldton); D. A. Fawcett (Kapuskasing); R. M. Christie (Kemptville); K. K. Irizawa (Kenora); W. B. M. Clarke (Lake Erie); J. M. Halpenny (Lake Huron); F. E. Sider (Lake Simcoe); A. E. Walroth (Lindsay); W. L. Sleeman (North Bay); J. S. Ball (Parry Sound); T. W. Hueston (Pembroke); W. D. Tieman (Sault Ste. Marie); F. L. Hall (Sioux Lookout); G. A. McCormack (Sudbury); S. R. Hamilton (Swastika); A. H. Peacock (Tweed); J. R. Oatway (White River, R. A. Baxter (Thunder Bay).

Ontario Forest Technical School: R. W. Hummel (Director).

STAFF TURNOVER OF REGULAR AND PROBATIONARY EMPLOYEES, 1969-70

	Resigned	Dismissed	Retired	Died	Super- annuated	Transfers Inter- Departmental	Misc	Total
Head Office	77 108	3 7	1 8	3 9	17 41	1 2	9 17	111 192
otal	185	10	9	12	58	3	26	303
lote: The staff turnover to	or the fiscal ye	ear was 8.37%.	This is the rat	io of separa	tions to total r	egular and probat	ionary sta	tt.

ACCOUNTS BRANCH



At Department exhibits and at meetings addressed by Department personnel, large numbers were helped to an improved understanding of the natural environment. Above: lunch break along the Lady Evelyn River, a popular canoe route in North Bay Forest District. Photo by F. Tremblay.

Accounts Branch is divided into units with duties an responsibilities as follows.

- Accounting: Supervision of accounting for entire Department; preparation of claims under Federal-Provincial agreements; compilation of costing reports; procedural control and safe keeping of assets; and financial liaison with Treasury Board, Provincial Auditor, and other Government Departments and agencies.
- Revenue: Collection of revenue; maintenance of accounts receivable; supervision of accountable warrar funds; control of collateral securities; and issue of anglin and hunting licences and park permits.
- Expenditure: Preparation of payrolls; internal check an payment of accounts payable; processing of refunds; an preparation of data for Public Accounts.
- Budget Preparation and Control: Compilation of est mates and forecasts; and expenditure reporting and contro
- Finance and Cost Analyses: Financial evaluation of plans and preparation of statistical and financial reports.
- Accounting Systems and Procedures: Development of accounting systems; preparation of accounting procedura manuals; and development of costing systems.
- Land Tax Administration: Administration of Provincial Land Tax Act; and assessments and appeals.
- Internal Audit: Review and appraisal of accounting, f nancial and operational controls.
- Systems and Procedures: Provision of systems improvement program for entire Department.
- General: Data processing; and addressograph and maservices.

INANCIAL REPORT

or year ended March 31st, 1970

COMPARISON OF RECEIPTS AND DISBURSEMENTS WITH THOSE OF THE PREVIOUS TWO YEARS

a) RECEIPTS (Bra	anch)			(b) DISBURSEME	NTS		
a) RECEIT 13 (DIE	1968 \$	1969 \$	1970 \$	(8) 5185011821112	1968	1969 \$	1970 \$
rovincial Land Tax	1,761,796	1,754,617	2,033,837				
orest Protection	163,205	128,821	155,495				
imber	17,057,603	18,657,238	20,554,132				
ands and Surveys	1,519,099	1,952,266	2,389,615				
ish and Wildlife	6,891,016	8,691,389	11,146,218				
'arks	2,432,009	2,413,613	3,082,227				
Other	155,616	181,460	157,161				
Total Receipts	29,980,344	33,779,404	39,518,685	General Expenditure	50,813,866	58,719,539	61,452,670

STATEMENT OF RECEIP

For Year Eng

\$36,436,458

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2,190,999 155,495
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133,493
),554,131.
0.00 644
,389,614.;
1,146,217

Carried Forward

larch 31st, 1970

DISBURSEMENTS

\$ 15,000.00 3,415,016.62	
4,552.12 1,662.74 34,776.00 132,859.85 142,456.13 213,296.23 12,500.00 1,434,412.85	\$ 5,406,532.54
\$ 2,429,173.07 137,435.00 543,361.00	3,109,969.07
\$10,760,393.59	
614,065.10	11,374,458.69
\$13,514,574.37	
117,264.86 250,886.68 \$13,882,725.91	
338,047.30	13,544,678.61
	3,415,016.62 4,552.12 1,662.74 34,776.00 132,859.85 142,456.13 213,296.23 12,500.00 1,434,412.85 \$ 2,429,173.07 137,435.00 543,361.00 \$10,760,393.59 614,065.10 \$13,514,574.37 117,264.86 250,886.68 \$13,882,725.91

R	F	CI	-	P7	S.	(Continued)
	-	\sim			_	continuca

	Brought Forward	\$36,436,458.8
PARKS BRANCH Park Concessions—Rentals	\$ 131,033.16	
Permits (All Parks) \$ 609,390.00 Vehicle	2,546,468.10	
Licenses—Guide Ski-Tow Fees Miscellaneous	5,575.00 3,058.00 34,715.27	
Government of Canada—Agriculture Rehabilitation and Development Project Costs (Prior Year's Expenditure) (Fixed Assets)	361,377.53	3,082,227.0
REIMBURSEMENTS OF EXPENDITURES Government of Canada Agriculture Rehabilitation and Development Project Costs Resources Development Project Costs Fisheries Industrial Development Project Costs Dam Construction Project Costs	\$ 1,107,950.04 100,000.00 31,750.00 85,000.00	1,324,700.0
GROSS RECEIPTS		\$40,843,385.9 1,324,700.0
NET RECEIPTS		\$39,518,685.9

Excess of Disbursements Over Receipts

21,933,984.0

DISBURSEMENTS (Continued)

	onunuea)	n Lie I	¢22 425 (20.01
nds Activity		Brought Forward	\$33,435,638.91
	2,614,395.08		
ravelling Expenses	135,141.72		
Maintenance and Operating	448,858.51	\$ 3,198,395.31	
Grant-Association of Ontario Land Surveyors		200.00	
and Surveys		860.121.80	
Maintenance of Locks, Bridges, Dams and Docks		92,873.76	
Dredging		9,743.14	
Storage Dams-control and maintenance		2,095.08	
Maintenance Forest Access Roads		1,053,889.29	
Annuities and Bonuses to Indians		41,468.00	
Construction Forest Access Roads		1,123,137.05	
Construction of Summer Resort Access Roads (See Receipts)		209,357.51	
Construction of Dams, Docks, Locks and Improvement to Flow Channels		1,030,807.12	
		\$ 7,622,088.06	
Less—Reimbursements of Expenditures—Government of Canada 💡		\$ 7,022,000.00	
Agriculture Rehabilitation and Development Project Costs	501,848.14		
Dam Construction Project Costs	85,000.00	586,848.14	7,035,239.92
-			
search Activity		\$ 1,296,429.53	
Salaries		62,401.00	
Travelling Expenses		383,297.97	1,742,128.50
Maintenance and Operating		303,297.97	1,742,120.30
CREATION PROGRAM			
ogram Administration			
Salaries		\$ 1,200,123.76	
Travelling Expenses		67,671.38	
Maintenance and Operating		394,696.86	1,662,492.00
Maintenance and Operating			1,002,472.00
sh and Wildlife Activity			
Salaries	1,364,474.84		
Travelling Expenses	247,614.35		
Maintenance and Operating	1,491,932.28	\$ 6,104,021.47	
Grants-			
Jack Miner Migratory Bird Foundation Inc\$	3,000.00		
Ontario Waterfowl Research Foundation	5,000.00		
Ontario Fur Breeders' Association Inc	5,000.00		
Ontario Council of Commercial Fishermen	5,000.00	18,000.00	
Payments of Wolf Bounty		69,996.00	
		\$ 6,192,017.47	
Less—Reimbursements of Expenditures—Government of Canada		\$ 0,132,017.17	
Resources Development Project Costs\$	100,000.00		
Fisheries Industrial Development Project Costs	31,750.00	131,750.00	6 060 267 47
1 /			
rks Activity			
Salaries \$	3,886,379.48		
Travelling Expenses	103,946.73		
Maintenance and Operating	1,261,753.92	\$ 5,252,080.13	
Acquisition and Development of Land		6,532,878.27	
		\$11,784,958.40	
		, , , , , , , , , , , , , , , , , , , ,	
.ess—Reimbursements of Expenditures—Government of Canada			
.ess—Reimbursements of Expenditures—Government of Canada Agriculture Rehabilitation and Development Project Costs		268,054.60	11,516,903.80

TOTAL EXPENDITURE ALLOCA

For Yea

	Vote	Activity	Sub- Activity
	Total	Total	Total
Programs Programs	\$	\$	\$
DEPARTMENTAL ADMINISTRATION	5,406,532.54		
(Pro-Rated by Operating Activities)		211 514 (1	241.516
Main Office		341,516.61	341,516.6
Accounts		1,475,379.07	1,475,379.0
Legal Services		137,796.28	137,796.2
Administrative Services		1,294,284.49 588,411.62	1,294,284.4 588,411.6
Personnel		403,440.58	403,440.5
Information and Education Junior Rangers		1,165,703.89	1,165,703.8
Julior Kangers			
	5,406,532.54	5,406,532.54	5,406,532.5
DESCRIBERS OF STREET ON AND DEVELOPMENT	27.721.270.22		
RESOURCES PROTECTION AND DEVELOPMENT Program Administration (Pro-Rated by Activities)	37,731,370.23	3,109,969.07	3,109,969.0
Forest Protection		11,374,458.69	3,103,303.
Protection Services		11,3/4,430.09	6,146,619.3
Communication Services			457,170.6
Plant Maintenance			840,015.5
Stock Control and Repair			673,672.3
Air Service			2,642,915.7
Extra Fire Fighting			614,065.
Timber		13,882,725.91	
Timber Service			13,514,574.3
Grants-Municipalities and Conservation Authorities			117,264.8
Construction of Logging Roads			250,886.6
Lands		7,622,088.06	2 (61 (04)
Lands Service			2,661,684.
Land Surveys			860,121.8
Maintenance of Locks			92,873.
Dredging			9,743. 2.095.0
Storage Dams—Control and Maintenance			1,053,889.2
Annuities and Bonuses to Indians			41,468.0
Construction Forest Access Roads			1,123,137.0
Construction Summer Resort Roads			209,357.
Construction of Dams, Docks, Locks,			207,73
and Improvement to Flow Chainels			1,030,807.
Canada Land Inventory			536,910.
Research		1,742,128.50	1,742,128.
	37,731,370.23	37,731,370.23	37,731,370.
			

MAIN ACTIVITIES

st, 1970

Forest Protection \$	Timber · \$	Lands \$	Fish & Wildlife \$	Parks \$	Less Reimbursement of Expenditures (Federal Contributions)
Ψ	Ψ	Ψ	Ф	D. D.	D D
53,310.74	115,364,31	37,327.77	62,156,02	73,357,77	
230,306.67	498,383.05	161,258.93	268,518.99	316,911.43	
21,510.00	46,547.58	15,061.13	25,078.93	29,598.64	
202,037.81	437,209.30	141,465.29	235,559.78	278,012.31	
91,851.05	198,765.45	64,313.39	107,090.92	126,390.81	
62,977.07	136,282.23	44,096.06	73,426.19	86,659.03	
189,207.07	387,864.46	32,221.21	22,072.62	534,338.53	
851,200.41	1,820,416.38	495,743.78	793,903.45	1,445,268.52	_
725,600.98	1,568,173.44	548,210.49	219,283.96	48,700.20	
6,146,619.36					
77,856.16	156,946.69	43,065.48	87,548.18	91,754.15	
143,054.64	288,377.33	79,129.46	160,862.98	168,591.13	
114,726.39	231,271.71	63,459.93	129,008.25	135,206.03	
784,286.12	393,094.94	- 186,909.06	1,094,850.21	183,775.39	
614,065.10					
	13,514,574.37				317,779.93
	117,264.86				20,267.37
	250,886.68				
		2,661,684.71			
		860.121.80			
		83,586.39	9.287.37		
		8,768.83	974.31		
		2,095.08			
281,646.92	452,653.24	206,382.10	81,998.31	31,208.72	
		41,468.00			
49,512.98	806,904.26	238,190.66	21,939.81	6,589.34	
		209,357.51			
		853.083.75	177,723,37		85.000.00
	222,499.56	215,875.43	98,535.61		501,848.14
7,621,49	723,084.66		993,834.29	17,588.06	
8,944,990.14	18,725,731.74	6,301,388.68	3,075,846.65	683,413.02	924,895,44

TOTAL EXPENDITURE ALLOCA

For Year

Programs	Vote Total \$	Activity Total \$	Sub- Activity Total \$
RECREATION	19,639,467.87		
Program Administration (Pro-Rated by Activities)		1,662,492.00	1,662,492.0
Fish and Wildlife		6,192,017.47	6 104 021
Fish and Wildlife Services			6,104,021.4 18,000.0
Grants			69.996.0
Payments of Wolf Bounty Parks		11.784.958.40	05,550.
Parks Service		11,701,7001.12	5,252,080.
Acquisition and Development of Land			6,532,878.2
	19,639,467.87	19,639,467.87	19,639,467.8

TOTAL NET EXPENDITURE	61.452.670.60	61.452.670.60	61,452,670.
TOTAL GROSS EXPENDITURE	62,777,370.64	62,777,370.64	62,777,370.0
	1,324,700.04	1,324,700.04	1,324,700.0

Percentage of Total

MAIN ACTIVITIES (continued) 31st, 1970 (continued)

Forest Protection \$	Timber \$	Lands \$	Fish & Wildlife \$	Parks \$	Less Reimbursements of Expenditures (Federal Contributions)
	41,232.99	3,967.02	752,263.09	865,028.90	
			6,104,021.47 18,000.00 69,996.00		131,750.00
				5,252,080.13	
	616,932.13	59,068.14	617,303.75	5,239,574.25	268,054.60
-	658,165.12	63,035.16	7,561,584.31	11,356,683.28	399,804.60

9,796,190.55	21,204,313.24 690,209.49	6,860,167.62 300,741.23	11,431,334.41 249,828.83	13,485,364.82 83,920.49	1,324,700.04
9,796,190.55	20,514,103.75	6,559,426.39	11,181,505.58	13,401,444.33	
15.94%	33.38%	10.67%	18.20%	21.81%	

LAW BRANCH



In 1969-70, the first full year in which the new resident angling licence was in effect, 603,670 licences were sold. Above: angler with yellow pickerel (walleye) from Lake Simcoe in the Talbot River area. Photo by W. J. Straight.

The duties and responsibilities of Law Branch may be summarized as follows.

- *Policy:* Establishing and reviewing Department policy with respect to legislation, regulations or administration; and integrating Department policies into those of the Government.
- Interpretation of statutes and regulations.
- Advice to branches and field offices on the legal position of the Department in all matters affecting it.
- Preparation and Processing of agreements; briefs, opinions and memoranda on special subjects; leases; legislation licences; office consolidations of statutes and regulations pleadings; recommendations to Council; and regulations under the various statutes administered by the Department
- Services (miscellaneous): Collection of bad accounts; conducting litigation; conveyancing; representing the Department as Counsel in Provincial Land Tax Appeals and other hearings; settlements of claims and disputes; and title searching.
- Liaison with federal officials on matters concerning fish eries; federal canal systems, harbours and lands; and Indian reserves and rights of Indians, particularly regarding hunting and fishing.
- Patents Office: Maintenance of records of Crown land and transactions respecting, and legal dispositions of Crown lands; advising the public on records; compilation of statistics; and preparation and engrossing of documents disposing of Crown land including leases, letters patent and licences of occupation.

EGISLATION

At the part of the 1968-9 Session of the Legislature that commenced on the 30th day of September, 1969, and prorogued on the 17th day of December, 1969, amendments were made to The Wolf and Bear Bounty Act with regard to the payment of wolf bounties by regional municipalities.

Section 1 of the Act was amended by adding a new clause to define "county" as including a regional municipality.

Section 2 of The Wolf and Bear Bounty Amendment Act, 970, provides for an extension of the six-month period for naking applications in respect of wolves killed in the Regional Municipality of Ottawa-Carleton after the 31st day of December, 1968, and before October 31, 1969. Provided the kin is produced to the Treasurer of that regional municipality on or before the 31st day of December, 1969, the person who killed the wolf is not disentitled to a bounty by the eason of not producing the skin within six months after the killing of the wolf.

Under section 3, this Act was deemed to have come into orce on January 1, 1969.

This amending statute appears in the 1968-9 annual stautes as Chapter 139.

At the part of the Session of the Legislature that commenced on the 24th day of February, 1970, and adjourned on the 26th day of June, 1970, two statutes administered by the Department were enacted, and amendments were made to five other statutes administered by the Department.

THE BLACKWELL-LAURIE BOUNDARY ACT, 1970

This new Act fixes the boundary between the geographic Township of Blackwell and the geographic Township of Laurie in the Territorial District of Thunder Bay and amends etters patent issued with descriptions that are inconsistent with such boundary. This Act came into force on June 26, 1970, and appears in the 1970 annual statutes as Chapter 24.

THE FISHERIES LOANS ACT, 1970

This new Act provides for loans to fishermen and others affected by the prohibition of the taking of fish by reason of pollution.

Section 1 defines "Minister" as the Minister of Lands and

Section 2 authorizes the Minister to make loans with or without interest in such amounts and upon such terms and

conditions as he considers appropriate to persons carrying on the business of commercial fishing or any other business dependent in whole or in part on the taking of fish from waters in which such taking has been prohibited by reason of the contamination of fish resulting from pollution of the waters.

Section 3 authorizes federal-provincial agreements respecting the sharing of such loans.

Section 4 provides that the monies required shall be paid out of the Consolidated Revenue Fund.

Section 5 provides that the Act came into force on April 20, 1970. This Act appears in the 1970 annual statutes as Chapter 10.

THE FOREST FIRES PREVENTION AMENDMENT ACT, 1970

Section 16 of The Forest Fires Prevention Act, 1968, was amended by adding a new subsection 2 which provides that the provisions of section 16 do not apply to material that has been ground, chipped or shredded in an installation approved in the work permit authorizing the clearing of the land.

This Act came into force on May 14, 1970, and appears in the 1970 annual statutes as Chapter 13.

THE GAME AND FISH AMENDMENT ACT, 1970

Section 1 of The Game and Fish Act, 1961-62, was amended by adding the following definitions of a fishing preserve and a wolf:

- 7b. "fishing preserve" means an artificial or man-made body of water lying wholly within the boundaries of privately-owned land, containing water from surface run-off, natural springs, ground water or water diverted or pumped from a stream or lake but not being composed of natural streams, ponds or lakes or water impounded by the damming of natural streams and in which fish propagated under a licence or fish taken under a commercial fishing licence are released for angling purposes;
- 31. "wolf" means any of the species Canis lupus L. or Canis latrans Say.

Section 19 of the Act was amended by adding new subsections 2 and 3. New subsection 2 prohibits the use of a vehicle or vessel for the purpose of chasing, pursuing, worrying, molesting, killing, injuring or destroying any animal or bird. Subsection 3 provides that subsection 2 does not apply to a farmer or to a party of farmers in the defence or preservation of the property of one or more of them.

Section 22 of the Act was amended by adding two new subsections. New subsection 2 makes it an offence to hunt any animal or bird between one-half hour after sunset and one-half hour before sunrise of any day. New subsection 3 makes it an offence to use, while hunting, any device capable of throwing or casting rays of light on any object.

Section 23 of the Act was amended to bring it in line with the amendments to section 22 and authorize the use of a light while hunting under a raccoon licence. In addition, the name of this licence was changed so that it makes clear that it is a licence to hunt raccoon at night.

Section 29 of the Act was re-enacted so as to require a greater control over imported animals and birds and their progeny. To strengthen the intent of the section, the element of "into natural cover" was removed from the offence and a new subsection 2 was added making it an offence to permit any animal or bird imported into Ontario or propagated from stock imported into Ontario to escape.

Subsection 2 of section 34 of the Act was amended by striking out the word "shipping" wherever it appeared in the subsection, and subsection 8 of section 34 was amended by inserting after "shall" in the second line the words "while hunting" to make it clear that the required badge must be worn only while hunting.

Section 39 of the Act was amended by adding subsections 5, 6 and 7 making it an offence for a non-resident to take more than one black bear under a licence to hunt bear and making provision for party hunting.

Section 51 of the Act was amended by adding a new subsection 2 which exempts a person or game hunting preserve exempted under the regulations from the provisions of section 51.

Section 64 of the Act was amended by adding to subsection 1 the words "to propagate and sell bass and trout" after the word "licence" in the seventh line thus combining the two licences into one licence, and, by striking out the word "licence" in subsection 2 of section 64 and inserting the words "commercial fishing licence" clarifying that the exception therein does not apply to angling licences.

A new section, section 64a was added to the Act establishing the requirement of a licence to own or operate a fishing preserve. Under subsection 2 of section 64a subsection 1 does not apply to a person or a fishing preserve exempted under the regulations.

Section 72 of the Act was amended by adding a subsection 4 authorizing export permits for non-residents in respect of animals or birds.

Subsection 2 of section 80 of the Act was amended by ac ing section 387 of the Criminal Code to the subsection order to bring this criminal offence within the purview the subsection. New subsections 2a and 2b were added section 80. Subsection 2a provides that upon the convicti of a holder of a licence mentioned in subsection 1 of se tion 71 of an offence against section 386 or 387 of t Criminal Code and committed in respect of live game o wolf held under the licence, the court has a discretional power of cancelling the licence. Subsection 2b authorize the court in making a conviction for careless hunting und section 18 of the Act to order that the convicted person sh not apply for or procure a licence to hunt except, upon t successful completion of an examination. Subsection 3 section 80 of the Act was amended to incorporate the ne principle set out in subsection 2b.

The regulation-making section of the Act, section 83, wappropriately amended to provide for the aforemention amendments.

This Act came into force on June 26, 1970, and appe in the 1970 annual statutes as Chapter 58.

THE LOGGERS' SAFETY AMENDMENT ACT, 1970

A number of amendments were made to The Loggers' Safe Act to strengthen and up-date certain sections.

Clause b of section 1 of the Act was amended to expres bring within the definition of "logger" an employee of operator in the course of his employment on a site on whi logging is conducted.

Clause c of section 1 of the Act was amended to inclu within the definition of "logging" the operation of measing of logs and thereby include scalers within the purvisof the Act.

Subsection 2 of section 2 of the Act was amended by acting the words "and for his personal use" at the end of the subsection to strengthen the intent of the subsection.

Subsection 1 of section 9 of the Act was repealed and following substituted therefor:

Where an accident, industrial disease, explosion or to causes bodily injury to a logger whereby he is prevent or is likely to be prevented from working beyond day of the occurrence, a notice of the occurrence in prescribed form shall be delivered or mailed to the chofficer by the operator.

Subsection 2 of section 9 of the Act was repealed and the following substituted therefor:

Such notice shall be delivered or mailed by the operator within three days after he learns of an occurrence mentioned in subsection 1.

Subsection 1 of section 10 of the Act was amended by striking out the words "critically injured" in the first line and substituting the words "hospitalized through injury".

This Act came into force on September 1, 1970 and appears in the 1970 annual statutes as Chapter 12.

THE PROVINCIAL PARKS AMENDMENT ACT, 1970

The Provincial Parks Act was amended by adding new secion 3c which provides for the appointment of advisory comnittees for one or more provincial parks.

This Act came into force on May 14, 1970, and appears in the 1970 annual statutes as Chapter 17.

THE PUBLIC LANDS AMENDMENT ACT, 1970

Amendments were made to The Public Lands Act effecting

the discontinuance of the reservation of trees in dispositions of public lands for summer resort locations.

Subsection 4 of section 17 of the Act was amended by striking out the words "all timber and trees standing, being or thereafter found growing thereon, and,".

Section 63 of the Act was amended by adding three new subsections. New subsection 1a voids existing reservations of trees on public lands granted for summer resort locations. New subsection 1b voids all reservations of trees contained in letters patent dated on or before April 1, 1869. New subsection 1c provides that the above-mentioned subsections 1a and 1b do not affect the rights of the holder of a licence under The Crown Timber Act subsisting on the day this Act came into force.

Section 3 of The Public Lands Amendment Act, 1970, strikes out the habenda in letters patent dated the 8th day of July, 1909, and the 12th day of July, 1909, granting to the Methodist Church lots 30 and 31 on the south side of Tenth Street in the Townplot of Gowganda in the Territorial District of Nipissing.

This Act came into force on June 26, 1970, and appears in the 1970 annual statutes as Chapter 59.

REGULATIONS

Thirty-seven regulations made under the authority of Acts administered by the Department of Lands and Forests were nade and filed during the fiscal year from April 1st, 1969, to March 31st, 1970.

the crown timber act

THE FOREST FIRES PREVENTION ACT, 1968

Э.	Reg. 119/69—New		Fire Districts
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D. Reg. 336/69—Amends O. Reg. 119/69 Fire Districts

Restricted Fire 70

 D. Reg. 346/69—New
 Restricted Fire Zone

 D. Reg. 349/69—New
 Restricted Fire Zone

D. Reg. 355/69—Revokes O. Reg. 349/69 Restricted Fire Zone

THE FRESHWATER FISH MARKETING ACT, 1968-69

D. Reg. 302/69—New General

THE GAME AND FISH ACT, 1961-62

- D. Reg. 235/69—Revokes O. Regs. 294/67 and 241/68 Open Seasons—Rabbit and Squirrel
-). Reg. 237/69—Revokes O. Regs. 272/67, 369/67 and 279/68.. Open Seasons—Game Birds
- J. Reg. 318/69—Amends O. Reg. 25/69Open Seasons—Deer, Moose and Black Bear
-). Reg. 319/69—Amends O. Reg. 46/65 Fishing Licences

O. Reg. 344/69—Amends O. Reg. 46/65 O. Reg. 369/69—Amends O. Reg. 277/68 O. Reg. 381/69—Amends O. Reg. 22/65 O. Reg. 391/69—Amends O. Reg. 237/69 O. Reg. 405/69—Amends O. Reg. 25/69 O. Reg. 406/69—Revokes O. Regs. 295/67 and 297 O. Reg. 409/69—Revokes O. Regs. 184/64, 232/68 and 297 O. Reg. 433/69—Amends O. Reg. 391/69 O. Reg. 473/69—Amends O. Reg. 22/65 O. Reg. 30/70—Amends O. Reg. 25/69 O. Reg. 98/70—Amends O. Reg. 25/69 O. Reg. 99/70—New O. Reg. 100/70—Amends O. Reg. 229/63 THE LOGGERS' SAFETY ACT, 1962-63 O. Reg. 268/69—Amends O. Reg. 317/64 THE PROVINCIAL PARKS ACT O. Reg. 245/69—Amends Reg. 498 of R.R.O. 1960 O. Reg. 474/69—Amends Reg. 498 of R.R.O. 1960 O. Regs. 214/61, 123/62, 71/65, 92 175/66, 209/67, 257/67, 115/68 and	F. C.	Hunting on Designated Croverown Game Preserves Open Seasons—Game Birds Open Seasons—Deer, Moos Open Seasons—Fur-Bearing ire-Arms Open Seasons—Game Birds Open Seasons—Game Birds Open Seasons—Deer, Moos Open Seasons—Deer, Mo	vn Land and in Provincial Pa e and Black Bear Animals e and Black Bear	rks
THE PUBLIC LANDS ACT O. Reg. 200/69—New O. Reg. 218/69—Amends Reg. 524 of R.R.O. 1960 O. Reg. 238/69—New O. Reg. 347/69—New O. Reg. 447/69—Amends Reg. 524 of R.R.O. 1960 O. Reg. 12/70—Amends O. Reg. 347/69 O. Reg. 113/70—Amends O. Reg. 370/61 THE SURVEYS ACT O. Reg. 301/69—New	Bl all all states and states are states and states are	lackwell, Conacher, Forbes, nd the Dawson Road Lots. ale of Public Lands. estricted Areas—Districts of ier, Lamarche, Clute and Haale of Public Lands. estricted Areas—District of ier, Lamarche, Clute, Hannale of Public Lands.	Goldie, Hagey, Haines, Lau of Cochrane and Timiskamin Cochrane, Townships of Fo Inna. Cochrane, Townships of Fo It and Lamarche.	ng. ur-
THE SURVEYORS ACT	2918/69			
THE SURVEYS ACT		THE MANAGES	OT.	
THE LOGGERS' SAFETY ACT, 1962-63	2926/69	THE MUNICIPAL A	3588/69	816/7
MISCELLANEOUS	2496/69	THE NIAGARA PAI	RKS ACT	
2773/69 4055/69 240/70	740/70	THE DROVINGIAL	DADIC ACT	811/7
3737/69 4417/69 552/70 3880/69 228/70 636/70		THE PROVINCIAL 2399/69	4408/69	341/7

HE CRO	WN TIMBER	ACT						
72/69	1654/69	1911/69	2572/69	2866/69	3454/69	75/70	626/70	
73/69	1657/69	1987/69	2579/69	2867/69	3564/69	155/70	627/70	
76/69	1659/69	2010/69	2609/69	2898/69	3571/69	187/70	643/70	
92/69	1661/69	2041/69	2664/69	2915/69	3583/69	230/70	647/70	
74/69	1663/69	2048/69	2668/69	2916/69	3671/69	238/70	662/70	
101/69	1738/69	2064/69	2669/69	2964/69	3757/69	260/70	663/70	
12/69	1743/69	2095/69	2670/69	2965/69	3781/69	291/70	664/70	
13/69	1749/69	2117/69	2675/69	2966/69	3791/69	307/70	665/70	
15/69	1755/69	2135/69	2686/69	3079/69	3792/69	310/70	730/70	
16/69	1756/69	2136/69	2687/69	3137/69	3801/69	315/70	749/70	
17/69	1767/69	2197/69	2688/69	3139/69	3837/69	323/70	755/70	
18/69	1768/69	2201/69	2693/69	3145/69	3873/69	363/70	756/70	
119/69	1785/69	2218/69	2699/69	3187/69	4059/69	378/70	757/70	
120/69	1813/69	2219/69	2700/69	3188/69	4259/69	458/70	789/70	
123/69	1818/69	2227/69	2731/69	3189/69	4260/69	459/70	790/70	
143/69	1838/69	2234/69	2806/69	3190/69	4261/69	460/70	795/70	
150/69	1883/69	2264/69	2819/69	3191/69	4267/69	544/70	796/70	
152/69	1884/69	2266/69	2820/69	3192/69	4268/69	545/70	809/70	
187/69	1885/69	2297/69	2822/69	3200/69	4269/69	546/70	839/70	
	1890/69	2372/69	2835/69	3219/69	4331/69	547/70	840/70	
90/69	1892/69	2373/69	2837/69	3344/69	4352/69	548/70	872/70	
55/69	1899/69	2378/69	2838/69	3447/69	4416/69	549/70	873/70	
62/69		2379/69	2850/69	3448/69	4436/69	550/70	884/70	
542/69	1905/69		2851/69	3449/69	4448/69	565/70	892/70	
643/69	1907/69	2380/69		3450/69	4500/69	568/70	032170	
644/69	1909/69	2424/69	2853/69	3453/69	4568/69	614/70		
553/69	1910/69	2514/69	2865/69	3453/69	4300/09	014//0		
HE EXEC	CUTIVE COUN	NCIL ACT		THE FOR	EST FIRES PRE	EVENTION AC		
			4046/69				3138/69	
HE PUBLIC LANDS ACT			THE FOR					
270/69	2809/69	4048/69	366/70	2238/69			644/70	
92/69	2862/69	4056/69	369/70	2250,00				
64/69	2903/69	4156/69	374/70				_	
42/69	2959/69	4192/69	462/70	THE FRESHWATER FISH MARKETING				
98/69	2963/69	4375/69	469/70	ACT, 196	8-69			
376/69	3018/69	4386/69	542/70	2870/69	2932/	60	2935/69	
967/69	3283/69	4598/69	554/70		2934/		2333103	
109/69	3353/69	4642/69	580/70	2901/69	2934/	03		
	3452/69	30/70	630/70	THE GAN	AE AND FISH	ACT. 1961-6	2	
216/69	3517/69	31/70	642/70	2304/69	3343/69	4032/69	551/70	
221/69		95/70	645/70	3112/69	3562/69	4130/69	602/70	
228/69	3587/69	131/70	646/70		3713/69	4407/69	002170	
125/69	3703/69	245/70	650/70	3131/69 3193/69	4024/69	156/70		
518/69	3720/69		653/70	3 193/69	4024/09	130/70		
519/69	3818/69	262/70		THE INTERPRETATION ACT				
501/69	3820/69	360/70	739/70	1272/69	1276/69	1401/69	4331/69	
523/69	3857/69	362/70	836/70		1276/69	2117/69	4331103	
774/69	3949/69	364/70	851/70	1273/69	1292/09	211//09		

FEDERAL-PROVINCIAL CO-OPERATIVE AGREEMENTS

AMENDING AGREEMENT UNDER THE FORESTRY ACT (ONTARIO)

By an agreement dated the 8th day of May, 1969, between the National Capital Commission, Her Majesty the Queen in right of Ontario represented by the Minister of Highways and Her Majesty the Queen in right of Ontario represented by the Minister of Lands and Forests, the Commission granted a licence to Highways to allow the Department of Highways to enter on certain lands of the Commission for the purpose of surveying, fencing and constructing Highway 417 through the greenbelt, in the Township of Gloucester in the Regional Municipality of Ottawa-Carleton. The Commission agreed to convey to Ontario the lands required for highway purposes when the limits of the required right-of-way were established, and the Minister of Lands and Forests released the lands so required from the terms of an agreement under The Forestry Act with the Commission.

WELLAND CANAL

By an agreement dated the 15th day of July, 1969, between the Government of Canada represented by the Minister of Transport acting under the authority of Order-in-Council PC 1969-1047, and the Government of the Province of Ontario represented by the Minister of Lands and Forests acting under the authority of Order-in-Council OC 691/69, Canada and Ontario agreed that Ontario has the administration and control of certain lands comprising a portion of the bed of the Welland River.

FRESHWATER FISH MARKETING CORPORATION

An agreement dated the 11th day of August, 1969, between the Government of Canada represented by the Minister of Fisheries and Forestry, and the Government of the Province of Ontario represented by the Minister of Lands and Forests, provides for the sharing by Ontario with Canada of initial operating and establishment expenses of the Freshwater Fish Marketing Corporation and any losses incurred as a result of the guarantee of repayment of loans made by Canada or any bank to the Corporation. Under the agreement, Ontario agrees to grant to the Corporation authority to exercise powers of regulation in relation to the marketing of fish taken within a designated part of Ontario and to arrange for compensation of fish processors for plant and equipment used for storing, processing or preparing for market fish taken in the designated area and rendered redundant by reason of the authorized operations of the Corporation.

FOREST RESEARCH STUDIES

By an agreement dated the 9th day of January, 1970, be tween the Government of Canada represented by th Minister of Fisheries and Forestry acting under the authorit of Order-in-Council PC 1969-2/2231, and the Government of the Province of Ontario represented by the Minister of Lands and Forests and the Minister of Public Works actin under the authority of Order-in-Council OC 4046/69, th agreement respecting forest research studies dated the 31st day of January, 1963, was terminated and a new agreemer made. Under the new agreement, Canada was permitted t occupy and use the Forest Insect Laboratory at Sault Ste Marie for the purpose of entomological research unt March 31, 1970, and Ontario agreed to lease the laborator to Canada for a further term not exceeding five years com mencing on April 1, 1970. Any equipment or fixtures sup plied and installed by Canada in the Laboratory of Fores Pathology at the Southern Research Station of the Depart ment of Lands and Forests at Maple and not removed price to October 31, 1968, became the property of the Province.

By an exchange of letters dated May 7, 1968, and May 24 1968, the Deputy Ministers agreed to co-ordinate the fores research programs of the Departments.

STATEMENT OF PATENTS

Statement of Patents, etc., Issued During the Year ending March 31, 1970 **PATENTS** Agriculture 8 City-Town 34 Free Grant 3 Miscellaneous 113 Summer Resort 1065 Release of Pine 122 LEASES Algonquin Park 16 Crown 33 Rondeau Park 45 Easement 1 Water Lot LICENCES OF OCCUPATION 67 CANCELLATIONS LEASES Algonquin Park 20 Crown 13 Lake Superior 1 Rondeau Park 44 Timagami 6

44

LICENCES OF OCCUPATION

OPERATIONS BRANCH



The White-Tailed Deer in Ontario, a new 24-page booklet, conveyed a wealth of information to students, naturalists and sportsmen. Photo of deer by E. W. Gorsline.

Operations Branch is divided into six sections with duties and responsibilities as follows.

- Office Management: Equipment inventory; boat licensing; policy and procedure directive production; mimeograph and photo-copy reproduction service; Crown land records; staff uniforms; Legislative publication distribution; telephone credit card; telephone directory updating; identification card; personnel directory; permit to carry firearms; revolver issue; Branch personnel records; and Branch financial and records management programs.
- *Purchasing:* Purchasing of equipment, supplies and services; filling requisitions; leases and rentals; and arrangements for travel and conferences.
- Central Supply Warehouse: Receipt, security and distribution of equipment, supplies, uniforms and printed material; and promotion of foreign state visits.
- Conservation Information: Publications; weekly newsletter and press releases; material for outside agencies; display and classified advertisements; photo, slide and cut services; reference library and clipping service; and supply of information to public.
- Conservation Education: Display material for Department exhibits; production and purchase of motion films; film supply service; program material for radio and television; and lecture service.
- Accident Control: Administration of The Loggers' Safety Act; Hunter Safety Program; safety program in Provincial Parks; staff safety and first aid programs; and Workmen's Compensation.

OFFICE MANAGEMENT SECTION

During the fiscal year, the reproduction facilities processed an average of 50,000 photo copies and 20,000 mimeograph copies per month.

The continued management of the 150,000 active files, containing Crown land records, required the recording of 135 incoming documents and the filing and retrieval of 250 files daily.

A total of 4,600 transactions (acquisitions and write-offs) were recorded in updating the equipment inventory; and 60 licences for boats were obtained.

A total of 2,500 uniform requisitions were processed to supply approximately 1,000 regular staff and 800 summer casual staff (mainly parks) with uniforms and replacement of uniform items.

Seven hundred and eighty telephone credit cards and 100 staff identification cards were issued during the year.

PURCHASING SECTION

This Section is vitally concerned with matters of demand and supply which, in turn, require an effectively integrated program of procurement in constant operation for fulfilment of its commitments.

A primary responsibility of the purchasing function is to obtain the right material at the right price and at the right time to ensure that the Department's requirements are met immediately, economically, with the best quality available, and that over-all best value is obtained for money expended. It is a basic necessity that Purchasing keep branches, regions and districts constantly informed and advised of new products and services, and of developments on established products and services.

Over 11,000 requisitions were received, each of which had to be examined to determine what was to be ordered, either by direct purchase order, by internal requisition to the Queen's Printer for stationery and certain printing, by internal requisitions to the Department of Public Works, and, in some instances, by memoranda, and what could be supplied from stock held in Central Supply Warehouse. Many and varied details entered into the consideration and finalization of each item, and involved correspondence, telephone usage, interviewing, searching, customs clearance, and, when necessary, the calling of tenders.

Direct purchase orders issued numbered 7,911; Queen's Printer stationery requisitions, 3,512; Queen's Printer printing requisitions, 475; Central printing requisitions, 799; and Public Works requisitions, 249.

Directions and oversight were maintained of leases an rentals of property for the Department throughout th province in conjunction with the Department of Publi Works. Telephone service was another matter overseen be this Section in its wide-ranging and diversified activity.

CENTRAL SUPPLY WAREHOUSE SECTION

During the fiscal year, the Section received a total of 37 tons of supplies and equipment, and shipped a total of 27 tons. Shipments were made by express, freight, transpoand mail, and by internal supply to Department offices.

Thirty types of licences were distributed to District office and approximately 3,500 issuers on 16,300 invoices. The 2,400,000 licences included hunting, angling, bait fish, ronet, dip net, frog, guide, trapping, trap-line, and delicences.

The distribution of Provincial Park permits included 27,10 annual vehicle permits, 410,800 daily permits, and 561,00 campsite permits.

Department uniforms were stocked and delivered to pe sonnel on requisition.

The Section participated actively on the committee responsible for the reception of government experts and stat visitors.

CONSERVATION INFORMATION SECTION

The Section worked through many media during the passiscal year to disseminate information on the protection and management of the renewable, natural resources under the Department's administration.

RELEASES

A newsletter of several pages circulated Department new and regulations every week in a form easily adapted by our side agencies. The mailing list of 3,500 included all news papers, broadcasting stations and outdoor writers in Ontaric as well as magazines, trade papers, forest industries, cor servation groups, recreational clubs, and a number of writers and commentators outside the province.

The French translation of the newsletter had a week circulation of 183.

News of more than normal urgency was supplied direct to important news outlets.

Conservation Copy carried additional material to pubners in season, while Conservation Spots supplied public tryice announcements to broadcasters.

Special appeals were prepared occasionally for news edia to enlist public support for Department programs.

Articles and background material were supplied to outle agencies on request. Speech material was prepared for partment personnel invited to address public meetings speak on broadcast programs.

RVICES

uring the year, 36,500 answers were returned by mail to rsons asking for information on Crown land, outdoor creation, nature study, forest tree planting or forest instry. Numerous requests were answered by telephone any technical questions were forwarded to other Branches.

The Photograph Library loaned 9,500 black-and-white ints and 1,000 colour transparencies to newspapers and agazines. Sets of slides or prints were supplied on request illustrate lectures. The library now has 42,000 negatives of 7,000 colour transparencies.

Section photographers took photographs on assignment d supplied prints from the darkroom.

The Reference Library circulated periodicals and press ppings through Head Office.

EW PUBLICATIONS

ientific papers, management reports, training manuals, insolidations of Acts, posters and Provincial Park leaflets e not included in the following list of publications released uring the 1969-70 fiscal year.

rish and Wildlife
t's Go Fishing
ildlife Land Management for the Ontario Landowner
white-Tailed Deer in Ontario
ntario Upland Game and Waterfowl Report
Fisheries of Lake Simcoe (\$1.00) (revised)
rm Ponds for Trout in Ontario
ntario Fish and Wildlife Review (periodical)
Commercial Fisherman (periodical)

e Game and Fish Act and the Ontario Fishery Regulations

mmary of the Ontario Fishing Regulations mmary of the Ontario Hunting Regulations

Sovisional Summary of Big Game Hunting Seasons in Ontario

Emmary of Ontario Regulations which apply to Trapping and Fur-Dealing

OUTDOOR RECREATION

Hunter's Handbook, Part II (\$0.75) Data on Hunting Accidents Safety Around Helicopters Swimmer's Itch

PROVINCIAL PARKS

Check-List of the Birds of Algonquin Provincial Park (revised)

Check-List of the Trees, Shrubs and Woody Vines of Algonquin Provincial Park (revised)

LAND AND WATER

The Ontario Map Catalogue
Geographic Townships in the Province of Ontario (\$0.50)
(revised)

FORESTS

Forest Tree Planting (\$0.50)
The Farm Windbreak
Ontario Tree Seed Plant
Growing Christmas Trees in Ontario (revised)
Farm Forestry Service for You (revised)
G. Howard Ferguson Forest Station (revised)
Midhurst Forest Station (revised)
Your Forests (periodical)

RESEARCH

The Ecology of the Timber Wolf in Algonquin Provincial Park

A Manual for the Identification of Hairs of Selected Ontario Mammals

Common Parasites of Ontario Fishes

ADMINISTRATION

Annual Report of the Minister of Lands and Forests Statistics, 1970 Publications, 1970 Does Nature Have a Chance?

CONSERVATION EDUCATION SECTION

The Section conducts an educational program which consists of the type of appeals calculated to attract public interest and explain in easily understandable terms the need for the wise use of renewable, natural resources.

VISUAL EDUCATION

The Section's film library contains 276 titles with two or more prints of many of the titles. All films are available for loan to field offices. During the year, approximately 1,400 films were shipped to field offices in answer to requests received. Each district has its own projection equipment and has access to regional film libraries as well as the Head Office film library.

The Section also loaned 16mm motion picture projectors, 35mm slide projectors, screens, and films to Provincial Parks offering an interpretive program to the public during the summer months.

During the year, the following films were added to Head Office and field film libraries.

A Fire Called Jeremiah Growing Paper I'm No Fool in Water Multiply and Subdue the Earth On Top of the Pros Science in the Forest So Little Time Timber Wolf White-Tailed Deer Wilderness Day

Several thousand feet of motion picture film were available for use by television stations in Ontario.

A set of ten one-minute television shorts were prepared for distribution to Ontario television stations covering various activities of the Department such as reforestation, new type water bombing planes, nursery operations, timber scaling, training hose and pump crews, water fowl, tree pollination, provincial parks, and litter prevention.

Further work was completed on the two films started last year, one on recreation in northern Ontario and one on logging safety.

Radio and Television. Radio and television stations throughout the Province have been most generous in their donations of free time to the Department, and District offices regularly take advantage of these opportunities to reach the public.

EXHIBITS

Visual conservation appeals are featured in the Department's exhibits at many of the shows and fairs in Ontario. The major exhibits handled through this Section were as follows.

Canadian National Exhibition, Toronto. Fishes of Ontario: An educational display of 20 varieties of Ontario's game fishes. Wildlife of Ontario: This display of 25 species of animals and birds is accompanied by valuable information

for students and others interested in wildlife habits an habitats. Hunter Safety Training: A display of safe hunting practices and good hunting manners as taught in the Hunte Training Course. Timber: Three animated models showing good woodlot management and the services offered by th Department regarding forestry assistance. Indians: Tw members of the Iroquois Six Nations Reserve demonstrate their talents in leather work, bead work and woodcarving Forest Protection: A cartoon display of eight causes of forest fire and how to prevent these careless happening also included-equipment used by a five-man forest fir fighting crew. Information and Publication Desk: For th purpose of answering public enquiries regarding Depar ment activities and services. The Conservation Poster Cor test for elementary school children from six to fourtee years of age was held again this year. A Grand Prize of \$100.00 was presented for the best poster. First, second an third prizes, in each of three age groups, in the amounts of \$50.00, \$25.00 and \$15.00, were awarded. Thirty "Honou able Mentions," ten in each age group, were presented wit books.

Central Canada Exhibition, Ottawa. An educational displa of Ontario's fish and wildlife along with Hunter Safety Training Program information; and a display of Ontario fur an its bearing on the Provincial economy.

International Plowing Match, Lindsay. A display of forestr practices, nursery management, and the connection of th forest with good wildlife management.

Royal Agricultural Winter Fair, Toronto. A display of nurser procedures, the growing and shipping of trees for reforestation projects; and good wildlife management practices.

Canadian National Sportsmen's Show, Toronto. An over-a display of education in conservation covering fish and wild life management, forestry—yesterday and today, locatior of all Provincial Parks, safe gun handling practices, land and surveys display of Crown Land, Indian handicrafts, an information and publication desk.

Aid to Districts. Full co-operation was given to Distrioffices participating in sportsmen's shows and agriculturfairs such as the Western Fair at London, the Internation Plowing Match at Paris, the Sportsmen's Show at Timmin and the Canadian Lakehead Exhibition at Thunder Bay.

Exhibit Awards. Our exhibit presented at the Canadia National Sportsmen's Show won Third Place in the award of the American Association for Conservation Informatic at the 1969 conference.

ECTURE TOURS

he Department kept in touch with the public through fish and game associations, schools, church groups, service ubs and youth organizations. Illustrated lectures were even on all aspects of the Department's work.

A total of 3,043 lectures was given to audiences totalling 03,644 during the past fiscal year. The totals included 76 lectures to 64,528 school children and 885 lectures iven by Ontario Forestry Association personnel to 23,337 ersons.

ACCIDENT CONTROL SECTION

continuing development of the safety program, aimed at eduction in loss of life, personal injury and property damge, is increasing the work load, and another additional ecident control officer has been added to field staff, bringing the total to twelve including three regional supervisors.

DRIVER TRAINING

comprehensive driver testing and training program, aimed t increasing efficiency in motor fleet management, was intituted early in 1970. Maintenance costs have been excesive, but these should be reduced by 50 per cent at least prough the expected improvement in efficiency and safe riving skills. The program will be inaugurated in Pembroke orest District on a trial basis for one year, commencing april 1, 1970, and it is expected to be put into operation broughout the Department on April 1, 1971.

HE LOGGERS' SAFETY ACT

nforcement of this Act is mainly a case of safety education. he large operators have excellent safety programs, generlly speaking, but the smaller operators do not and cannot fford such programs, and it is in this area that our assistance most needed. We do, however, participate in all logging afety programs wherever possible.

During the year, our officers made over 3,500 inspections nder the Act, giving advice on safety matters, and issuing tarnings and stop-work orders for serious infractions of the act and Regulations.

There were 18 fatal accidents reported to us for the year 369, an increase of four over the previous year.

IUNTER SAFETY TRAINING

istruction has been upgraded and a new examination for istructors put into force. All existing instructors, who

wished to continue in the program, were retested. Qualified instructors now total 1,208. Each instructor is required to conduct at least one class each year to remain on the active list, and must be re-examined every three years.

The Hunter's Handbooks, recently produced, have proven to be of considerable assistance to instructors and potential hunters. During the year, 13,973 persons received training in safe hunting.

SAFETY IN PROVINCIAL PARKS

Field officers of the Section make frequent inspections in Provincial Parks, reporting hazardous or unsafe conditions to the proper authority for immediate remedial action. (The Section is not responsible for the beach patrol maintained in some parks.)

During the months of July and August, the Department sponsored a water-safety demonstration presented by the Ontario Safety League in 35 Provincial Parks. Not only did park visitors benefit from these demonstrations, but broad coverage of the program was obtained through television and radio broadcasts.

WORKMEN'S COMPENSATION

Department costs for the fiscal year 1969-70 totalled \$225,320.22, a decrease of \$23,000 from the previous fiscal year. The total cost is composed of \$104,495.35 for pensions, \$17,179.84 for administrative costs, and \$103,645.03 for medical aid and compensation.

Compensable claims numbered 754, a decrease of five from the previous year. The average cost per claim was \$148.00, a decrease of \$39.00.

Fire control costs totalled \$2,057.14 of which \$1,288.29 went to actual fire fighting. Total cost decreased 58 per cent from the previous year.

Costs in the junior ranger program increased sharply and totalled \$18,319.17 of which junior rangers accounted for \$13,796.00 and senior staff \$4,523.17, making a cost increase of 80 per cent.

There were no deaths in the fiscal year. Five new pensions for permanent disability were estimated.

The Injury Frequency Rate was 17.7, an increase of 0.3 over the previous fiscal year. The rate is based on lost time in relation to man-days worked.

The Lands and Forests Safety Trophy was won by Kenora Forest District with an injury frequency rate of 3.5. The District had a total of 56,857 man-days worked and two lost-time injuries.

RESEARCH BRANCH



Rooting of spruce and pine cuttings in nursery mist bed. Photo by I. F. Robinson.

Research Branch is divided into an Administration ground three sections, each with its subordinate units, with duties and responsibilities as follows.

ADMINISTRATION

Supervises research programs, operates and maintain Southern Research Station, and provides the following professional and technical services.

Biomathematics and Statistics

Drafting

Mechanical

Library Photography

FISHERIES SECTION

Great Lakes Units: Fisheries Research Stations at Glenora (Lake Ontario), Wheatley (Lake Erie), South Baymouth (Lake Huron), and Sault Ste. Marie (Lake Superior).

Game Fish Units: Lake Trout, Brook Trout, Smallmouth Bass Kokanee, and Walleye.

Discipline Units: Selective Breeding, Parasitology, Limnology, Productivity, and Technical Studies.

FORESTRY SECTION

Maple Units: Developmental, Forest Economics, Ecology Tree Nutrition, Mensuration, Wood Science, Nursery and Plantation, Seed Research, Site, and Tree Breeding.

Field Units: Southwestern (Maple), Mid-Western (Por Arthur), South-Central (Dorset), Central (Sault Ste. Marie) and Southeastern (Tweed).

WILDLIFE SECTION

The Wildlife Research Station is located in Algonquin Provincial Park. The following units are located at Maple. Big Game

Furbearers Predators

Upland Game and Waterfowl
Wildlife Diseases and Parasites

ISHERIES SECTION

ne Fisheries Research Section was made responsible for eveloping a research position respecting the quality of the nvironment, and the Supervisor became a member of the ommittee on Fisheries and Wildlife Research, Science puncil of Canada.

REAT LAKES UNITS

ake ontario unit

ne sea lamprey population reached its highest level of bundance since the mid 1950s and continued to be a prious impediment to research and management progress.

The whitefish population continued to show modest gns of improvement under the experimental management estem which has reduced exploitation levels. Laboratory udies of whitefish egg and fry survival under adverse enronmental conditions, such as those which may now preail in Lake Ontario, are proceeding.

Sampling stations in the Bay of Quinte were continued to onitor the deterioration of that environment for fish. Subantial areas of water, showing an oxygen depletion in late immer, have now developed.

Laboratory studies of the effect of DDT on Walleye reroduction was conducted in the spring and require repetion in 1971.

Experimental plantings of splake and kokanee continued efforts to develop practical rehabilitation plans when sea mprey control is realized. Lamprey wounding on experiental coho plantings were observed to be severe.

AKE ERIE UNIT

orther data on the condition of important fish stocks were plained by sampling the commercial catches and through e use of experimental gear at a few specific locations.

The Index Fishing Project, designed to establish by exprimental fishing a year-to-year index of the relative bundance of some fish species, provides data for predicting, at least qualitatively, the success of commercial fishing the or two years hence. Smelt continue to be abundant, and a strong year class was produced in the spring. Yellow preh reproduction was again poor.

AKE HURON UNIT

le long-awaited beginning of the rehabilitation program of Lake Huron, using the highly selected splake, was begun. le splake, a special hybrid which has been under selective development in the Research Branch for some 15 years, has been specifically designed to fit the changed environment of Lake Huron and is the basic element of the international program of rehabilitation now under way in Lake Huron. The first modest plantings were made last year, and the fish will be the object of intensive research to document survival, growth and reproduction in the wild.

Kokanee studies continue to provide grounds for optimism that this salmon species may meet our expectations. Natural reproduction by planted stocks has now been recorded in both streams and on shoals.

Whitefish studies, which are now concentrated on the formerly little known, early life history stages, show promise of (a) possibilities of developing index stations where we may predict whitefish abundance four or five years earlier, and (b) possibilities of understanding the factors which determine year-class strength and subsequent population size.

LAKE SUPERIOR UNIT

Significant numbers of native, undersized lake trout have finally made an appearance in the catches presumably as a result of the apparently meagre spawning of the past two years. There is evidence of a minor decrease in lamprey activity generally, although some areas show sharp increases. Adequate data are now available from research to provide an opportunity to reassess the major planting program.

In relation to an ecological study of rainbow trout, limnological data from Batchawana Bay and Carp and Stokely streams were gathered. A distribution study indicated that these fish were most abundant near shore in shallow water.

GAME FISH UNITS

LAKE TROUT UNIT

The creel census in operation since 1935 is continuing to provide information on the dynamics of populations. Work has started on a Lake Trout Monograph which is intended to bring together in one volume all information on this species. A major report on the effect of food habits on the biology of lake trout was issued this year.

BROOK TROUT UNIT

Emphasis has been on improving the contribution of planted stocks to anglers' catches. Natural and planted populations are being studied for background information. Studies include population sizes and a measure of the yield under different levels of fishing intensity.

The effect of planting techniques and of predation on survival of planted stock is receiving intensive study.

SMALLMOUTH BASS UNIT

Preliminary observations from a study in Greenleaf and Opeongo Lakes suggest that spawning may not be as severely regulated by actual temperatures as by rates of change, and that the thermal history of the eggs may be important to the eventual survival of young bass and thus to year class success. Important information on the influence of exploitation on the biology of smallmouth bass was obtained.

WALLEYE UNIT

In May and June, 1,200 walleye were tagged with large numbered tags readable underwater. Studies by direct observation using Scuba gear were carried out. Density of fish related indirectly to water transparency, maximum numbers being found where visibility was 13-16 feet. Evidence indicated a schooling tendency which persists throughout the year. Feeding activity was found to be closely related to changing light intensity.

DISCIPLINES UNITS

LIMNOLOGY UNIT

From May to October, 19 ponds and lakes within a 40-mile radius of Toronto, of different origin, size, morphometry and water supply, were sampled. Profiles were obtained of temperature, dissolved oxygen concentration, specific conductance, pH, total alkalinity, hardness and transparency. Samples were also taken to be analyzed for phosphates, nitrates and other chemicals.

A study of higher aquatic plants was undertaken to (1) find species or communities indicative of various stages of eutrophication, (2) to determine the importance of these plant communities as nurseries or feeding grounds for young fish, and (3) to obtain information which may help in deciding when aquatic growth should be controlled.

SELECTIVE BREEDING UNIT

Flotation testing of F_3 hybrids (brook trout x lake trout) for the 1967 year class was completed at Tarentorous, resulting in 194 selected yearling brood stock.

The first plantings of 30,000 yearlings from Ontario brood stocks were made in Georgian Bay and South Bay in May.

The brood stock at Chatsworth produced about one million fertilized eggs which is sufficient to utilize present rearing facilities.

Studies of the life history and ecology of successive generations of splake have been made in natural conditions to learn what to expect of these highly selected fish when large plantings are made.

PARASITOLOGY UNIT

The parasite *Glugea hertwigi* has infected 87 per cent of smelt sampled in Lake Erie and has spread to Lake Ontario No evidence has yet been seen of it in Lake Huron. Wordon the manual of fish parasites for Ontario is proceeding to the publication target date in 1971.

PRODUCTIVITY UNIT

This unit is developing a practical index that will allow the classification of Ontario lakes in terms of their potential fo producing pounds of fish. Total dissolved solids and mean depth have been established as the two more important indicators.

TECHNICAL STUDIES UNIT

Recent emphasis given by several units to young-of-the year fish has increased the need for more specialized service in identification and measurement of plankton, bottom fauna and fish food organisms.

A study to identify plankton species and populations, be fore and after operation of the Nanticoke Hydro develop ment, was initiated in co-operation with Fish and Wildlife Branch, Hydro and Ontario Water Resources Commission.

HARKNESS MEMORIAL LABORATORY

The facilities were used by Brook Trout, Lake Trout, Lim nology, Parasitology, Selective Breeding, Productivity and Smallmouth Bass Units, and by staff and graduate student from the Universities of Toronto, York and Guelph and Waterloo.

SUBLIMNOS

Within the Smallmouth Bass project, a program was initiate to develop, stimulate and investigate the feasibility cusing advanced techniques of underwater habitation i freshwater research. An underwater platform, called Sullimnos, was used in Little Dunk's Bay, from which was caried out a bottom-sediment survey, population studies caquatic insect larvae, and testing and evaluation of unde water sampling equipment.

ORESTRY SECTION

eflecting a greater emphasis on the problems of the enironment and regional planning as well as the changes aking place within the Department, the Section Supervisor epresents the Branch in matters pertaining to regional planing and Planning, Programming, Budgeting System. He is lso a member of the Canada-Ontario Joint Forest Reearch Committee.

In addition to the work of the Units described below, coperative studies are carried on with several Universities, ne Ontario Research Foundation, the Canada Department f Fisheries and Forestry, and the wood using industry.

MAPLE UNITS nursery and plantation

Preliminary results, from experiments on the over-winter torage of nursery stock, suggest that the use of a polyethyene bag containing the seedlings and some wet moss, kept below freezing, has some advantage over the standard nethod.

Frost hardiness studies continued. There appeared to be distinct differences in frost hardiness between species.

TREE BREEDING

Results of poplar breeding show that a remarkable number of hybrids have been produced in that development of a arge number of clones is underway. Effort will now be concentrated on nursery and field testing of the new hybrids produced to derive their maximum potential.

In the improvement work on spruce, very encouraging results were obtained by rooting cuttings. Some of the species show such a high percentage of rooters that there should be little trouble in propagating them clonally.

A co-operative project with Timber Branch has been nitiated to assess the selected clones in spruce seed prchards. The general combining ability of the various clones, the specific combining ability of clones, and the determination of the variation and heritablity of certain characteristics are being investigated.

In blister rust resistance studies on white pine, the testng period needed was reduced from 5-6 to 1-2 years by using tublings and a blister rust identification method in park tissue.

WOOD SCIENCE

Dealing principally with black spruce, studies are aimed at defining the specific physical and chemical wood characteristics which contribute to the superior quality of the manufactured products and to relate those characteristics to heritable and environmental factors.

Development work continues on a method for assessing the average specific gravity and compression wood content of all the wood in the bole of standing black spruce.

This Unit has co-operative projects with the Ontario Research Foundation and the University of Toronto on wood quality, wood anatomy, product quality, and chemical and mechanical pulp.

SITE

A series of ten maps, showing land-type patterns for the eastern part of Georgian Bay, is under preparation.

The Unit has co-operated with Timber Branch and field staff in establishing criteria and selecting suitable stands for an experiment conducted jointly by Ontario, Quebec, Manitoba, the Pulp and Paper Research Institute of Canada, and the Canadian Forestry Service to determine the effect of nitrogen, phosphorus and potassium fertilizers on growth of black spruce and jack pine.

A soil-root relationship study in plantation red pine indicates yearly shifts in the distribution of growth along and between individual roots and the stem. The pattern may be related to the development stage of the tree, the condition of the aerial parts, the distribution of the roots in relation to their particular soil environment, and the variations in moisture availability throughout the growing season.

Computations were completed of long-term average monthly and annual evapotranspiration, moisture deficit and moisture surplus for all stations in Ontario.

MENSURATION

Areas of work include the construction and measurement of present forest stand conditions, the determination of volume yield per acre, measurement of rates of growth, and the prediction of future wood production. This information is necessary in planning land use and is basic to the management of the timber resource.

Computation of yields, from permanent sample plots in hardwood types, has been complicated by the presence of faster-growing intolerant species mixed with the slowergrowing tolerant species. Mixed stands will have to be treated separately.

FOREST ECONOMICS

The Unit conducted a sociological study to determine the carrying capacity of canoe routes in Algonquin Provincial Park to provide information required in the preparation of the Algonquin Park Plan.

A continuing review of forestry and the forest industry of the USSR is maintained.

TREE NUTRITION

Several experiments are in progress to determine the effects of various nutrient materials in different applications on a number of tree species. Techniques have been developed and described to measure the effects of nutrient treatments.

Analyses of foliar samples and growth data from black spruce in the Kinoje Lake area (51°32′ N, 81°50′ W) indicated a correlation between volume growth at the tree base and foliar nitrogen.

SEED RESEARCH

Preliminary studies have indicated a meaningful relationship between seed size and density and rate of seedling growth in white and black spruce and jack pine. The objective of continuing studies is to define this relationship more closely.

A study of jack pine seed showed a reduced germination rate for smaller seeds and a decrease in total germination with decreasing density of the seed lots. Uniformly, fast-growing, seedlings may be best obtained by eliminating small and low-density seed.

ECOLOGY

The program involves studies of the developmental relationships between tree species and their environments, and includes physiological investigations of host responses to environmental stress (including biological pressures). In particular, the studies provide information basic to the management of the hardwood forests.

Studies of physio-ecological aspects of yellow birch regeneration revealed that pigmentation is a useful ecological display of integrated light value and seedling vigour, especially in partially cut stands where maple and birch management are combined.

Data on the extent, severity and variability of logging damage were gathered during an operation in Algonquin Provincial Park maple stands. Information resulting from the interpretation was incorporated into the management program.

DEVELOPMENTAL

A design change in the air conditioning of the greenhous resulted in a much more efficient system.

A number of items were developed including a pack an dispenser for handling herbicide pellets, an improve method of handling groups of seeds, and a special dispense for mixing fertilizer formulae. The feasibility of field green house designs was investigated.

FIELD UNITS

NORTHERN ONTARIO

Earlier studies of cut-over areas indicated the strong numer cal dominance of balsam fir over more desirable whit spruce in the natural regeneration, emphasizing the nee for control and management information for balsam fir. A an indirect control, the possibility of influencing flower an seed production of balsam fir with synthetic auxins is bein investigated. As a direct control of balsam fir seedlings, range of scarification treatments was conducted on 85 acre of a white spruce seed tree cutting.

A series of micro-environmental studies was initiated t determine the natural factors promoting or inhibiting ba sam fir germination.

A wood-quality study of trembling aspen, undertaken o cut-over areas supporting poplar regeneration up to thirt years of age, revealed no reliable relationships betwee numerous external features and wood quality. A new stud is examining growth and wood quality in relation to soil ansite features.

CENTRAL ONTARIO

Field and laboratory studies continued on nutrition, growt and the productivity ecology of spruce, as well as specie and racial variation in the spruce genus. Root systems wer excavated from a range of conditions; biomass and chemical data were collected.

Tubed seedlings, representing 28 spruces, 50 provenance and 14 forms and hybrids, were out-planted in experiment covering a complete range of plant hardiness zones and sit regions in Ontario. Taxonomical, physiological and genet cal relationships within and between spruce species will b investigated.

SOUTH-CENTRAL ONTARIO

The work of the Unit was re-organized to provide direct assistance to management of the hardwood forests in Algor quin Provincial Park. This included interpretation of new aerial photography to locate the stands of sugar maple which show promise of being suitable for continued production.

nder a partial cutting regime. Maps were prepared for the lajor hardwood licensed areas showing the proportion of uch areas which have not been cut heavily in the past. Iround inspection was completed in the current cutting reas, and cruise data utilized in guiding timber marking rews. Some diameter increment data were obtained to aid a predicting growth of treated stands.

OUTHWESTERN ONTARIO

his Unit is attempting to develop practical techniques for ne selection, mass production, establishment and culture f fast growing veneer-quality phenotypes of the commerially important hardwood species in the swamps and upands of southern Ontario.

Experiments in Greenoch and Beverly Swamps have shown that heavy mechanical thinnings are more effective in proporting growth than is heavy or medium chemical thinning.

The use of a misting bed for propagating silver maple by poting cuttings has resulted in a great improvement over nethods previously used.

Six fast growing, well formed, lumber-type eastern cottonyood and three Jackii poplar were reproduced by hardyood cuttings. Site suitability studies can now commence. York has also been started on the suitability of lumber-type yillows.

Six hundred two-year-old silver maple seedlings were outlanted in the Newell Tract for evaluation with respect to ite, strain and individual superiority.

Tests are continuing in an effort to develop rodent and eer repellents with sufficient persistence for practical use n establishing hardwoods under swamp conditions. Creote and Lysol in various mixes have been applied to silver naple in rodent infested swamps. Evaluation will continue or five years.

Studies continue on various methods, including the use f tublings and nurse crops, for producing suitable hard-rood material on upland hardwood sites.

OUTHEASTERN ONTARIO

results of tests on the use of pelleted herbicides, to kill or educe Ribes in white pine areas, indicate that in this form, andling and application are much easier than spraying. A nal report on effectiveness of the pellets will be completed ext year.

Examination after three to seven years of the growth of asswood nursery stock, planted in the spring following cutng, revealed that basswood grew better in small openings in cut strips than in the open or dense shade.

WILDLIFE SECTION

The Supervisor has assumed responsibility for organizing the Research Branch programs along systems rather than disciplines lines. A practical application of this has been the studies of the effects of proposed northern watersheds diversions.

FURBEARERS

The activities of this Unit were restricted during the period because of the leave-of-absence of the scientist-in-charge, Mr. A. B. Stephenson, who was on loan to the Quebec government on a special assignment.

Essential long-term studies of beaver populations were continued in Algonquin Provincial Park, Central and West Patricia, and in the Round Lake Indian Band area. These were conducted under the supervision of the Section Supervisor.

WILDLIFE DISEASES AND PARASITES

As a result of the existing surveillance procedure, an increased mortality in Canada geese and ring billed gulls became apparent and was specifically investigated.

The "Manual of Common Parasites, Diseases and Anomalies of Wildlife in Ontario" was expanded to include four additional wildlife parasites.

A severe die-off of Canada geese in the Lake Erie marshes was investigated and attributed to lead poisoning caused by the ingestion of lead pellets while feeding from the bottoms of heavily hunted lakes and marshes.

Over 100 red fox pups were collected for rabies investigators. A wild rabies outbreak was then studied under laboratory conditions.

Blue and snow geese trapped in a drive at moulting time on Cape Henrietta Maria. Photo by H. Lumsden.



A program was started to develop a baiting system for the administration of oral vaccine to control rabies.

A technique is being refined so that, by conducting aerial track surveys in various parts of an endemic rabies area each winter, predictions may be made of potential rabies outbreaks.

UPLAND GAME AND WATERFOWL

A paper describing the function of the shoulder spot display of grouse has been completed.

Work on the development of a technique for measuring productivity of snow geese was completed. The breeding season for these birds was the latest in the eight years experienced on Cape Henrietta Maria. It was also the second poorest in terms of production. This was attributed to a late and cold spring.

The Kinoje Lake nesting study of Canada geese, supported by the Mississippi Flyway Council, entered its third year. Egg laying probably started on April 23. The average clutch size was 4.72 eggs. Nest success was calculated at 77 per cent, about the same as the two previous years.

BIG GAME

Studies were continued on deer to gather information to assist management. Data were collected on sex, age, weight, body measurements, date and location of kill for the harvest in the Canonto study area.

The work continued on determining the effects of snow cover on distribution and survival of deer in Ontario.

Plots established in 1957 to study the effects of deer on forest regeneration were tallied.

A preliminary assessment was made of the population and ecology of a small herd of American bison occupying an area near the Burwash Game Preserve since 1936. Fourteen animals were observed and tracks followed. With a single exception, no tracks went beyond one-half mile from shore.

Data were collected in Kenora and Sioux Lookout Forest Districts on the weight and measurement of moose harvested.

A socio-economic study of the factors affecting moose hunting, in co-operation with York University, was initiated.

PREDATORS

As part of the intensive predator-prey interaction study, a pack of eight wolves, four of which were fitted with radio transmitter collars, was kept in almost daily surveillance for a period of 65 mid-winter days.

The pack travelled 203 miles during 45 days and range over 86 square miles. Over a period of 63 days, 29 deer wer killed. It is calculated that daily food consumption wat eight pounds per wolf.

A survey was conducted along the Hudson Bay shorelin to establish number and distribution of polar bears.

A preliminary study, designed to investigate methods of capturing and handling free ranging black bears, was init ated as a co-operative project with North Bay Forest District

WILDLIFE RESEARCH STATION

The facilities of the Station at Lake Sasajewan in Algonqui Provincial Park were used by Research Branch and staff an graduate students and staff from the University of Toronto

Field courses were held for biology students from Wate loo Lutheran University and Carleton University and for a ecological study group from Queens University.

TECHNICAL SERVICES

This Section, a part of the Branch Administration, provide specialized professional and technical services in the following fields.

BIOMATHEMATICS AND STATISTICS

In addition to providing consultative services to Branc scientists, other Departmental staff and members of othe agencies, the following provides a resume of the Unit activities.

A "Maple Model" was developed for the hard maple content of hardwood stands in Algonquin Provincial Park, base on data from sample cruises that included a quality assessment of each hard maple stem. Determination may be made of (1) the number of trees in a hypothetical stand, (2) the distribution over the diameter class range, (3) whether purpulate or mixed wood stand, (4) which of stems are half maple, and (5) the assignment of maple stems to one of three quality classes.

A simplistic model was developed for the annual clusteing and dispersal of moose and deer.

Data on the weeviling of white pine provenances we analysed and summarized.

A stem analysis and regression analyses of black spru from several northern sites were completed.

Data on seedlings shipped from nurseries to Districts we analysed.

Additional work was done on old and new fisheries comuter programs.

DRAUGHTING

The Unit provided maps, charts and figures for reproduction Branch reports and scientific journals. A map and aerial photograph library is maintained.

HOTOGRAPHY

The staff photographer provides all photographic docunentation in the laboratory and in the field required by Reearch Branch personnel. This is provided in black-and-white or colour, still or in motion, employing macro, semi-macro, and micro, photographic techniques.

IBRARY

The Library has more than doubled its capacity during the year.

An accession list of new material is issued monthly.

Title pages of 125 periodicals are circulated every two weeks. 300 requests for photostatic reproductions are received per month, and 150 requests for service per week; and 80 inter-library loans are processed per month.

MECHANICAL UNIT

Some of the major projects completed by this Unit were:

- 1. Beach algae removal equipment for provincial parks.
- 2. Trailer-mounted telescoping tower for high-level selective cone harvesting.
- 3. Semi-flexible seed bed scarifier for rough, rocky sites.
- 4. Fish conditioning apparatus.
- 5. Pocket-size increment-borer sharpening device.

PUBLICATIONS

Published during the year ending March 31, 1970.

ISHERIES SECTION

- Bidgood, B. F. and A. H. Berst. Lethal temperatures for Great Lakes rainbow trout. J. Fish. Res. Bd. Canada 26: 456-459.
- Budd, J. C., F. E. J. Fry and P. S. M. Pearlstone. Final observations on the survival of planted lake trout in South Bay, Lake Huron. J. Fish. Res. Bd. Canada 26: 2413-2424.
- Christie, W. J. Possible influences of fishing in the decline of Great Lakes fish stocks. In: Proc. 11th Conf. Great Lakes Res. 1968: 31-38.
- Dechtiar, A. Two new species of monogenetic tramatodes (*Trematoda: Monogenea*) from nasal cavities of catostomid fishes. J. Fish. Res. Bd. Canada 26: 865-869.

- Ferguson, R. G. Key to salmon and trout in the Great Lakes. Ont. Dept. Lands & Forests, Res. Br., Res. Inform. Paper (Fish.) No. 36, 16 pp.
- Fraser, J. M. and F. W. H. Beamish. Blood lactic acid concentrations in brook trout (*Salvelinus fontinalis*) planted by air drop. Trans. Am. Fish. Soc. 98(2): 263-267.
- Kwain, W. H. and H. R. MacCrimmon. Age and vision as factors in bottom colour selection by rainbow trout, *Salmo gairdneri*. J. Fish. Res. Bd. Canada 26: 687-693.
- Kwain, W. H. and H. R. MacCrimmon. Further observations on the response of rainbow trout, *Salmo gairdneri* Richardson, to overhead light. J. Fish. Res. Bd. Canada 26: 3233-3237.
- Leach, J. H. Seasonal limnology of an excavated pond in southern Ontario. Prog. Fish. Cult. 31: 11-19.
- MacCrimmon, H. R. and W. H. Kwain. Influence of light on early development and meristic characters in the rainbow trout, *Salmo gairdneri*. Can. J. Zool. 47: 631-637.
- McCombie, A. M. and A. H. Berst. Some effects of shape and structure of fish on selectivity of gillnets. J. Fish. Res. Bd. Canada 26: 2681-2689.
- Reigier, H. A., V. C. Applegate and R. A. Ryder. The ecology and management of the walleye in western Lake Erie. Great Lakes Fish. Comm., Tech. Rept. 15, 101 pp.

FORESTRY SECTION

- Burger, D. Calcium release from 11 minerals of fine-sand size by dilute sulfuric acid. Can. J. Soil Sci. 40(1): 11-20.
- Burger, D. Relative weatherability of calcium-containing minerals. Can. J. Soil Sci. 40(1): 21-28.
- Burton, D. H., H. W. Anderson and L. F. Riley. Natural regeneration of yellow birch in Canada. In: Birch symposium proceedings. USDA, Forest Serv. N.E. Forest Exp. Sta.: 55-73.
- Fowler, D. P. and C. Heimburger. Geographic variation in eastern white pine, 7-year results in Ontario. Silvae Genet. 18(4): 97-144.
- Glerum, C. Vitality determination of tree tissue with kilocycle and megacycle electrical impedance. For. Chron. 46: 63-64.
- Glerum, C. The influence of temperature on the electrical impedance of woody tissues. Forest Sci. 15(1): 85-86.
- Haddow, W. R. The spread and development of white pine blister rust in Ontario. Ont. Dept. Lands & Forests, Res. Br., Tech. Ser. Res. Rept. No. 86, 57 pp.

- Hattemer, H. H., W. R. Henson and F. Morgan. Some factors in the distribution of European pine sawfly egg clusters in an experimental plantation of hard pines. Theor. Appl. Genet. 39: 280-289.
- Heimburger, C. Breeding white pine for resistance to blister rust at the interspecies level. In: Proc. NATO-IUFRO Advanced Study Institute on Basic Biology and International Aspects of Rust Resistance in Forest Trees. (In press).
- Heimburger, C. Relative blister rust resistance of native and introduced white pines tested in Eastern North America. In: Proc. NATA-IUFRO Advanced Study Institute on Basic Biology and International Aspects of Rust Resistance in Forest Trees. (In press).
- Heimburger, C. C. and D. P. Fowler. Precocious flowering in some pines of the Lariciones group. Silvae Genet. 18(5-6): 146-150.
- Jaciw, P. Cottonwood culture in the Lower Mississippi Valley Study Tour, September 30 to October 5. Ont. Dept. Lands & Forests, Res. Inform. Paper.
- Larsson, H. C. Techniques of producing silver maple seed under greenhouse conditions. Paper presented to N.E. Forest Tree Impr. Conf.
- Larsson, H. C. What is being done about the swamps of southern Ontario? Your Forests 2(2): 5-6.
- Leech, R. H. Response of a jack pine plantation to urea and potassium fertilizers. Ont. Dept. Lands & Forests, Res. Br., Tech. Ser. Res. Rep. No. 88, 44 pp.
- McEwen, J. K. Effects of drainage on a black spruce stand. Ont. Dept. Lands & Forests, Res. Br., Sec. Rept. (Forestry) No. 71, 12 pp.
- Mullin, R. E. Effects of competition on post-planting growth of potted white spruce. Tree Planters' Notes, 20(1): 19-22.
- Mullin, R. E. Soil acidification in a forest nursery. Commonw. For. Rev. 48(4): 138.
- Mullin, R. E. Soil acidification with sulphur in a forest tree nursery. Sulphur Inst. J. 5(1): 2-3.
- Rauter, R. M. and L. Zufa. A rapid technique for the determination of *Cronartium ribicola* mycelium in white pine bark tissue. In: Proc. NATO-IUFRO Advanced Study Institute on Basic Biology and International Aspects of Rust Resistance in Forest Trees. (In press).
- Stroempl, G. Fruit defects in basswood (Tilia americana L.). For. Chron. 45(3): 172.

- Zufa, L. The heritability of the stem form of black pople (*Populus nigra L.*). Second World Consultation on Fore Tree Breeding, Washington, 7-16 August, 1969. FAC FTB-69-3/7. 11 pp.
- Zufa, L. Poplar breeding in Canada. For. Chron. 45(6 402-408.
- Zufa, L. Vegetative propagation experiments in white pine In: Proc. NATO-IUFRO Advanced Study Institute on Bas Biology and International Aspects of Rust Resistance in Forest Trees. (In press).

WILDLIFE SECTION

- Addison, R. The development of a system of big game in ventory, utilizing an infrared line scanner. Progr. Rept.
- Addison, R. Round Lake moose and caribou surveys—wir ter 1969. Round Lake Study, Interim Rept., March.
- Adorjan, A. and G. Kolenosky. Identification of hairs of selected Ontario mammals. Ont. Dept. Lands & Forest Res. Br., Tech. Ser. Res. Rept. (Wildlife) No. 90. (In press
- Fyvie, A. Disease and parasitism in wildlife in Ontario i 1968. Resource Manage. Rept. 102: 1-8.
- Johnston, D. H. and M. Beauregard. Rabies epidemiolog in Ontario. Bull. Wildl. Dis. Ass. 5: 357-370.
- Johnston, D. H. Techniques for capturing pheasants wit alpha-chloralose, Midwest Fish and Wildl. Conf., St. Pau Minn. Dec. 7-10, 1969. Progr. Rept.
- Kolenosky, G. B. Wolf movements, activities and predatio impact on a wintering deer population in east-centra Ontario. In: Proc. Midwest Fish and Wildl. Conf., St. Pau Minn. Dec. 7-10, 1969. (In press).
- Lumsden, H. G. The shoulder spot display in grouse (Tetra onidae). In: The Living Bird, Laboratory for Ornithology Cornell Univ. (In press).
- Smith, H. and F. Raymond. A preliminary analysis of beave colony distribution in the Round Lake Band Area. Round Lake Study, Interim Rept., March.
- Standfield, R. O. A history of timber wolf (*Canis lupus*) populations in Ontario, Canada. In: Proc. IX Int. Congr. c Game Biologists, Moscow, USSR, September 1969. (I press).
- Standfield, R. O. Assessment of satellite photographs for resource research and management in the Ontario Department of Lands and Forests. Progr. Rept.

TIMBER BRANCH



ree harvester, Thunder Bay Forest District. hoto by C. Van Gemerden.

Timber Branch is divided into two sections and their subordinate units, and one separate unit, with duties and responsibilities as follows.

TIMBER PRODUCTION SECTION

Silviculture Unit: Establishment and treatment of forest crops on Crown lands and Agreement Forests, and on private lands under The Woodlands Improvement Act agreements; collection, processing, storage, distribution and improvement of tree seed; production and improvement of planting stock; and development of new equipment and techniques. Advisory Services Unit: Development and direction of an active forest extension program on private lands; administration of forestry agreements with private landowners; distribution of nursery stock; assessment of silvicultural programs; and editorial and administrative services for Branch publications.

TIMBER SALES SECTION

Forest Resources Inventory Unit: Continuing program of forest re-inventory on Crown lands; preparation of maps and compilation of reports for Crown Management Units; co-operative forest inventories on Company Management Units; preparation of contour plans for Provincial Parks; and air photo library and map photo service.

Management Planning Unit: Supervision of management plan preparation; preparation of planning manuals and volume tables; and direction of access roads programs. Licensing and Finance Unit: Issuance and control of timber licences; measurement of timber cut on Crown lands and Agreement Forests; development of new methods of measurement; licensing and registration of scalers; and preparation of scaling returns.

FOREST ECONOMICS UNIT

Mill licensing; analysis of the economics of timber production, transportation and marketing; promotion of industrial expansion; and preparation of industry directories and regional reports of timber availability.

TIMBER PRODUCTION SECTION SILVICULTURE UNIT

The silvicultural operations of the Unit include the regeneration and tending of forests on Crown lands, lands managed under agreements such as Township, County and Conservation Authority Forests, and Lands managed under The Woodlands Improvement Act.

Forests may be regenerated by natural or artificial means. Site preparation is usually necessary to disturb the forest floor and top soil, creating more suitable conditions for natural regeneration, seeding or planting. Site preparation also promotes better survival and growth.

The tree seed is self-sown in natural regeneration. The site preparation is done adjacent to a seed source, or the harvest system may be modified with the retention of strips of green timber or single trees to provide the seed.

Artificial regeneration involves site preparation of large areas for planting and seeding. Nursery stock is planted by machine or by hand. Tubed seedlings are grown in greenhouses and planted by hand. Seeding may be done from the air or from the ground.

Tending includes treatments such as cleaning, herbicide spraying for release, thinning, improvement cutting, and pruning during the life of the forest.

Comparison of Average Annual Area Cut Over and Area Regenerated on Crown Lands (acres)

Average Annual Cutover, 1965-67	395,000
Average Area regenerated without	
silvicultural treatment, 1966-68	132,500
Area regenerated by silvicultural	
treatment, 1969-70	133,500

SEED COLLECTION

The inventory of forest tree seed in storage at the Ontario Tree Seed Plant at Angus, as of June 1, 1969, was about 2,370,000,000 viable seeds of 45 species, weighing 386,000 ounces or over 12 tons, and valued at approximately \$400,000. The 1969 crop was a good crop year for the pines and a number of other species but a poor one for spruce. The volume of red pine cones collected was the largest in more than 25 years.

1969 SEED CROP

Species	Collect
White Pine Red Pine Jack Pine Scotch Pine Black Spruce White Cedar Black Walnut	2,3 4,1 4,6 1 . 4 . 1
Other Species TOTAL	4

TREE IMPROVEMENT

Through application of the scientific principles of fore genetics, we are improving the quality and increasing the quantity of available seed. Our approaches include the selection of additional "plus trees", the development of see production areas, and the planting of grafted trees in see orchards. The program is concerned mainly with white pin red pine, jack pine, white spruce, black spruce and respruce.

During the year, we collected 8,200 scions from "pl trees"; these were grafted at our co-operating nurseries. total of 18.0 acres of seed production area was thinned, r leased or improved in other ways for seed production pt poses. Planting of 1,500 grafted trees was completed on 11 acres of seed orchard.

As of March 31, 1970	Number	Acr
Seed Production Areas	27	304
Seed Orchards	11	106

NURSERY SOIL MANAGEMENT

Our objective is to maintain the balance of soil nutrients produce top-quality seedlings. During the year, 375 sc samples and 428 plant samples (consisting of 5,600 see lings) were analyzed for chemical composition and physilogical properties. The analysis data is used to evaluate scand plant conditions and in the preparation of the scanendment program needed to produce high quality stores.

Herbicides and fertilizers are being tested constant When a new technique proves effective in nursery practic it is used to control weeds and increase seedling quality.

Disease and nutrient studies are also being carried out a co-operative basis with staff on Research Branch, the Ca ada Department of Forestry and Fisheries and the University of Toronto.

ILVICULTURAL DEVELOPMENT

his activity concerns investigation, development and evalution of new equipment and techniques that may be used a improve the efficiency of silvicultural operations.

Current work includes development of an aerial forest ertilization program; participation in forest fertilization rials with other provinces, the Pulp and Paper Research estitute and the Canada Department of Forestry and Fishries; investigation of new chemical herbicides and silvides; and field-testing of a flail site preparation unit.

PECIAL PROJECTS

Correctional Camps. The Department supplied technical guidance for forestry programs carried out by seven forestry amps operated by the provincial Department of Correctional Services and the Beaver Creek Correctional Camp operated by the federal Department of Justice. The seven provincial camps provided 16,800 man-days of labour for his Department. The men cleared road right-of-ways, camp ites, fireguards and compartment boundaries; they collected cones and burned brush; and they planted trees, pruned and thinned trees, and worked on cull tree removal. The men from the federal camp worked 1,400 man-days on orestry work.

unior Rangers. During July and August, the Department employs 17-year-old students under the Junior Forest Ranger Program. Some of these students spent part of their time doing work for Timber Branch. About 13,000 man-days were devoted to cone collection, nursery work, tree planting and forest tending.

ndians, planting trees on Crown land in Kapuskasing Forest District. Photo by D. Marshall.



SILVICULTURAL OPERATIONS, 1969-70

	Crown A	greement Forests	*W.1.A.	Total Acreage
Regeneration a) Natural				
-by site				
preparation	20,978			20,978
harvest cutting -by seed tree	8,808	429		9,237
system	13,498	_		13,498
b) Artificial direct seeding				
-ground	2,231	2		2,233
-aerial planting	8,923	_		8,923
-nursery stock	66,081	2,540	9,178	77,799
-container stock	12,995	_	_	12,995
Total Regeneration	133,514	2,971	9,178	145,663
2. Tending				
Hand cleaning	6,891	1,243		8,134
Herbicide spraying	42,272	257		42,529
Thinning,				
improvement cutting Girdling, frilling	6,111	980	4,100	11,191
poisoning	5,841	444	2,054	8,339
Pruning	898	1,003		1,901
Fertilization	1,0.14	44		1,058
Drainage	40			40
Total Tending	63,067	3,971	6,154	73,192
Total Area Treated	196,581	6,942	15,332	218,855
3. Site Preparation				
for seeding and planting	46,841	646	_	47,487

^{*}Agreements under The Woodlands Improvement Act

_	Crow	n Land	Agreement Forests	Private Lands	Other	
Forest District		Nursery Trees	Nursery Trees	Nursery Trees	Total Trees	
Chapleau	3,601,000	429,600				4,030,6
Cochrane	2,658,700	1,705,200				4,363,9
Fort Frances	2,303,739	88,100		204,950		2,596,7
Geraldton	6,607,475	30,000		,		6,637,4
Kapuskasing	5,965,600	611,000				6,576,6
Kemptville	384,320		1,217,179	2,123,900		3,725,3
Kenora	1,985,450	106,200		8,350		2,100,0
Lake Erie	135,000		52,400	1,320,994		1,508,3
Lake Huron	33,619		208,750	2,976,726		3,219,0
Lake Simcoe			284,250	2,852,841		3,137,0
Lindsay	215,814		50,250	1,347,763		1,613,8
North Bay	1,248,500	735,700		, ,		1,984,2
Parry Sound	655,000	601,800		513,600		1,770,4
Pembroke	1,880,000	622,000	200,000	1,191,400		3,893,4
Sault Ste. Marie	2,018,475	1,161,200	,	110,450		3,290,1
Sioux Lookout	2,694,100	214,800				2,908,9
Sudbury	6,015,225	602,800	:	128,825		6,746,8
Swastika	3,982,425	2,236,500		5,625		6,224,5
Thunder Bay	3,126,800	1,402,200	5,000	559,700		5,093,7
Tweed	700,000	, ,	103,000	901.840		1,704,8
White River	1,439,200	1,786,200				3,225,4
Unclassified	,				1,010,890	1,010,8
TOTAL	47,650,442	12,333,300	2,120,829	14,246,964	1,010,890	77,362,4



Wildland tree planter, Sudbury Forest District.

ADVISORY SERVICES UNIT

PRIVATE LAND FORESTRY

The intent of the private land forestry policy is to improve the management of privately-owned forest land. Ultimately the benefits of this improvement will be an increased flow of better-quality logs and other products for wood-usin industries and greater returns to woodland owners. The private land forestry program provides a free advisory service to landowners on planning and establishing plantations and tending and marketing forest crops.

ORESTRY EXTENSION ACTIVITIES

- Conducted tours for school groups and others at the forest tree nurseries and the Ontario Tree Seed Plant at Angus. Approximately 8,600 school children participated therein.
- An instructional tour for landowners with agreements under the Woodlands Improvement Act. Over 100 attended and the tours are to be continued in ensuing years.
- Co-operation in the preparation and manning of exhibits at the Toronto C.N.E., the Ottawa C.C.E.A., the London Fair and the Royal Winter Fair. Districts prepared and manned over 50 exhibits at local fairs and exhibitions.
- Co-operation with the Ontario Department of Agriculture and Food in providing guidance to the Ontario Maple Syrup Producers' Association.
- Co-operation in the revision of publications required to interest and instruct landowners in essentials of private land forestry.

THE WOODLANDS IMPROVEMENT ACT

Under The Woodlands Improvement Act, 1966, landowners may enter into agreement with the Minister for improvement of their lands through tree planting and rehabilitation of existing woodlands. Department staff plant trees and carry out stand improvement in accordance with mutually agreed upon plans at no cost to the owner. The owner pays or the nursery stock and agrees to protect his woodland.

The total number of agreements in effect as of March 31, 1970, was 1,388, comprising a total area of 89,526 acres.

AGREEMENT FORESTS

Section 2 of The Forestry Act authorizes the Minister to enter nto agreements with the owners of lands suitable for forestry purposes for the management of such lands, and to nake grants to any conservation authority or to any municipality to encourage and assist it in the acquisition of lands hat are to be managed under such an agreement.

A total of \$117,264.86 to assist with the acquisition of 5,289.17 acres of land was paid during the year. Canada vill contribute \$40,532.18 of the foregoing amount to Onario under an agreement made between Canada and Onario pursuant to their respective A. R. D. Acts.

TREE DISTRIBUTION

To meet the increasing demand for planting stock, sufficient seed is sown at ten forest tree nurseries for the production of 100,000,000 trees by 1972.

Production Target By Districts	Nursery	Number of Trees
Chapleau	Chapleau	2,000,000
Kemptville	Kemptville	13,889,000
Kenora	Dryden	13,242,000
Lake Erie	St. Williams	7,419,000
Lake Simcoe	Midhurst	14,186,000
Lindsay	Orono	9,117,000
Sault Ste. Marie	Thessalon	1,755,000
Sudbury	Gogama	1,600,000
Swastika	Swastika	18,267,000
Thunder Bay	Thunder Bay	18,525,000
TOTAL		100,000,000
PRODUCTION TARGET By Species		Number of Trees
M/hito Pino		8,200,000
		15.200.000
		12,567,000
		2,060,000
		34,450,000
Plack Spruce		22,500,000
		5,023,000
Black Spruce		22,500,0

TREES CONSERVATION

Under authority of The Trees Act, and with the approval of the Minister of Lands and Forests, counties or municipalities in territorial districts may pass by-laws with respect to private lands to restrict and regulate the destruction of trees by cutting, burning or other means. Such by-laws have been passed by the following municipalities:

Counties: Brant, Bruce, Dufferin, Elgin, Grey, Haldimand, Halton, Hastings, Huron, Lambton, Leeds and Grenville, Lincoln, Middlesex, Norfolk, Northumberland and Durham, Oxford, Peel, Perth, Renfrew, Waterloo, Welland, Wellington, and Wentworth.

Townships: Brunel and Hudson.

SUMMARY OF THE FORESTRY ADVISORY AND ASSISTANCE SERVICES PROVIDED TO PRIVATE LANDOWNERS AND ORGANIZATIONS, 1969-70

Total number of inquiries received		17,72
Number of field inspections made. (a) to advise on planting (b) to advise on forest management (c) to advise on maple syrup and Christmas trees (d) for miscellaneous purposes, e.g., insects, windbreaks	1,276 902 135 1,306	3,61
Number of management programs prepared	306 478	78
Total number of acres of private forest land for which management programs were prepared (a) advisory services programs (b) Woodlands Improvement Act programs	9,610 31,101	40,71
Total number of trees planted on private lands (a) advisory services programs (b) Woodlands Improvement Act programs	7,172,839 7,074,125	14,247,00
Total number of acres of forest land treated under the Woodlands Improvement Act (a) reforestation (b) woodlands improvement	9,178 6,154	15,33
Total volume of timber marked under the advisory services program (a) saw timber (b) pulpwood	1,035,700 cu. ft. 6,141 cords	
Activities with youth groups—total number of groups (a) 4H Forestry clubs (b) 4H Conservation clubs (c) Resource Rangers (d) other groups—Boy Scouts, Girl Guides, etc.	20 8 8 300	33
Public education activites (a) newspapers—articles —paid advertisements (b) number of radio and T.V. programs arranged (c) number of field days and tours (d) meetings with municipal or conservation authority officials (e) number of demonstration areas established (f) number of exhibits arranged (g) miscellaneous	298 18 32 249 282 4 54	1,09
Hours spent on forestry instruction (a) University of Guelph (b) Western Ontario Agricultural School—Ridgetown (c) Kemptville Agricultural School.	26 6 50	8

GREEMENTS UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1970

ANACAL	Date of Agreement	Acres Added 1969-70	Total Acres
reement With			
overnment of Canada	Aug. 16, 1961	_	3,632.00
ational Capital Commission	Aug. 10, 1901		
onservation Authorities	Dec. 13, 1951	_	4,299.00
usable River	Dec. 2, 1954	75.00	3,841.40
g Creek Region	Dec. 19, 1962	_	501.00
atfish Creek	Sept. 24, 1963	_	195.00
entral Lake Ontario	Aug. 21, 1963	-	200.00
rowe Valley	Jan. 31, 1947	_	8,548.60
anaraska Region	Mar. 18, 1952	_	5,866.37
rand River	Oct. 19, 1962	_	12.50
amilton Region	May 15, 1958	_	1,256.70
akehead Region	Aug. 12, 1964	_	300.00
ower Thames Valley	Apr. 1, 1955	_	949.00
Maitland Valley	Apr. 11, 1951		1,928.00
Metropolitan Toronto and Region	Nov. 28, 1951		16,497.00
Aoira River	Oct. 28, 1954	_	6,666.00
Napanee Valley	June 6, 1963	_	186.00
liagara Peninsula	June 25, 1958	-	7,255.00
North Grey Region	May 15, 1963	275.00	1,820.00
Otonabee Region	Apr. 26, 1957	_	1,532.00
Otter Creek	Sept. 29, 1959	_	3,816.00
auble Valley	Dec. 15, 1952	309.00	13,573.00
augeen Valley	Mar. 28, 1960	791.30	2,429.80
outh Nation River	July 13, 1965	_	150.00
Sydenham Valley	Apr. 11, 1951	_	3,444.36
Counties			50.00
Brant	Nov. 15, 1952		15,533.35
Rruco	Jan. 20, 1950		2,405.00
Dufferin	Nov. 26, 1930		8,378.08
Grev	Dec. 21, 1937		1,498.63
Halton	Mar. 14, 1950		1.439.00
Huron	Nov. 27, 1950	_	75.39
Kent	Dec. 23, 1953	495.00	4,130.00
lanark	July 5, 1940	959.00	11,176.00
Loads and Grenville	Apr. 24, 1940	757.00	1,186.00
Lennov and Addington	Apr. 3, 1952		1,793.90
Middlesey	Mar. 8, 1954		5,819.00
Northumberland and Durham	June 10, 1924	700.00	4,641.00
Ontario	July 9, 1930	700.00	716.56
Ovford	Sept. 1, 1950	502.87	25,252.93
Prescott and Russell	Mar. 15, 1937	1,277.00	13,306.00
Renfrew	Dec. 26, 1951	1,277.00	
			tinund

AGREEMENTS UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1970 (continued)

Agreement With	Date of Agreement	Acres Added 1969-70	Total Acres
Simcoe	June 19, 1925	437.00	21,582.
Stormont, Dundas and Glengarry	Sept. 20, 1949	318.00	2,566.
Victoria	Aug. 10, 1928	_	8.319.
Waterloo	Apr. 17, 1950		710.
Wellington	June 18, 1964	_	1,100.
Wentworth	Nov. 27, 1952		989.
York	Mar. 27, 1924	_	4,725.0
Regional Municipalities			
Ottawa-Carleton	July 30, 1964	150.00	830.0
Townships			
Bonfield	Apr. 1, 1952	_	60.0
Charlottenburgh	Apr. 1, 1955		175.0
Cramahe	Jan. 4, 1964	_	162.0
Cumberland	May 29, 1952	_	808.4
Darlington	Aug. 19, 1964	_	140.0
Galway and Cavendish	Nov. 1, 1952		619.0
Machar	Dec. 30, 1963	_	90.0
Marlborough	Nov. 21, 1953	_	200.0
Mosa	July 16, 1964	_	144.0
Torbolton	Mar. 28, 1953	dermini.	430.8
Williamsburg	Oct. 19, 1962	-	400.0
Summary			
1 Government of Canada		_	3,632.0
23 Conservation Authorities		1,450,30	85,266.7
23 Counties		4,688.87	137,393,8
1 Townships			3,229.2
1 Regional Municipalities		150.00	830.0
59 Total		6.289.17	230.351.8



Three-month-old jack pine seedlings grown in perforate and solid plastic tubes. Photo by J. F. Robinson.

ISTRIBUTION OF NURSERY STOCK AND CONTAINER STOCK, 1969-70

			*	Nursery Stock				Container	
	Private	Lands	Crown	Agreement	Educa- tional or	Miscel-		Stock Crown	Total
ecies	W.I.A.	Other	Lands	Forests	Scientific	laneous	Sub-Total	Lands	Trees
la la a Dimo	1,190,875	830,080	5,016,194	213,800	1,325		7,252,274	717,400	7,969,674
hite Pine	3,238,750	949,250	2,239,237	588,800	1,775		7,017,812	2,113,800	9,131,612
d Pine	248,100	361,550	8,876,945	494,200	700		9,981,495	4,784,200	14,765,695
k Pine	22,025	1,493,150	20,344	13.7200	600	1,000,000	2,536,619		2,536,619
otch Pine		1,575,595	20,046,588	618,750	800	, ,	24,146,683	1,398,400	25,545,083
hite Spruce	1,904,950 1,200	1,373,373	11,002,167	0,0,, 50	1,000	3,000	11,145,142	3,319,500	14,464,642
ack Spruce		346,851	41,380	200	25		467,656		467,656
orway Spruce	79,200	2,550	258,225	44,000	23		304,775		304,775
ed Spruce	0.4.505	606,820	23,282	4,600			719,227		719,227
hite Cedar	84,525	190	23,202	1,000			190		190
ed Cedar	56,825	98,125	5,225	61,000			221,175		221,175
iropean Larch		23,450	103	100			68,878		68,878
marack	45,225	87,666	15,194	8,700	380		132,065		132,065
hite Ash	20,125	101,447	7,810	10,100	250		140,457		140,457
ed Oak	20,850	159,700	51,878	42,604	175		316,932		316,932
lver Maple	62,575		31,734	5,425	550		335,004		335,004
arolina Poplar	33,775	263,520	225	8,000	100		115,525		115,525
ack Locust	19,975	87,225	650	1,700	30		57,455		57,455
ack Walnut	33,400	21,675	44,000	18,850	180		101,000		101,000
ther	11,750	26,220	44,000	10,030					
OTAL	7,074,125	7,172,839	47,681,681	2,120,829	7,890	1,003,000	65,060,364	12,333,300	77,393,664

Includes nursery stock turnished to all provincial government departments and 2,563,600 trees purchased from Kimberly-Clark Pulp and Paper Company Limited and Spruce Falls Power and Paper Company, Limited, under Regeneration Agreements with the Province of Ontario.

DISTRIBUTION OF NURSERY STOCK FROM DEPARTMENT TREE NURSERIES

ear ending March 31.	Private Land	Crown Land Agreement Forests	Other	Total Trees
61	13,708,050	35,630,393	494,969	49,833,412 43,194,863
62	11,505,775 9,597,300	31,666,580 33,958,451	22,508 212,165	43,767,916
64	9,016,400 10,791,980	34,752,240 38,551,572	154,045 140,516	43,922,685 49,484,068
165	11,312,900	34,481,899	3,225,055	49,019,85
067	9,542,325 10,219,517	41,839,242 44,248,398	330,894 337,255	51,712,46 54,805,170
%8 %9	11,956,165 14,246,964	40,183,862 47,365,642	17,123 1.010.890	52,157,150 62,623,490

FOREST ECONOMICS UNIT

Throughout the 1969-70 fiscal year, Canada's economic activity was subject to a series of interrelated phenomena. The rapid economic growth which had begun in the first quarter of 1961 had by this period evolved into spiralling inflation. Stringent anti-inflationary actions of the federal government resulted in tight-money conditions and brought about a general decline of the nation's economic activity. The most prevalent indicators of this occurrence were the significant decrease in housing starts and a decline of activity in the construction sector.

These conditions were to have substantial implications for the forest industry, as indicated by the selling price indexes for the following industry components.

INDUSTRY SELLING PRICE INDEXES.*

	Veneer, Plywood Mills	Sawmills	Pulp, Paper Mills
1969—April	145.4	168.2	113.2
May	150.4	160.1	113.3
June	150.5	145.7	113.6
July	140.3	138.5	114.5
August	140.5	132.3	114.3
September	140.0	130.4	114.4
October	133.5	127.7	114.6
November	133.4	128.8	114.1
December	130.4	128.9	113.9
1970—January	130.7	124.0	118.2
February	127.0	123.4	118.4
March	123.8	122.7	118.6

^{*}Source: D.B.S., Prices and Price Indexes

Veneer and plywood prices experienced a significant decline beginning in the second quarter of 1969 and continuing throughout the fiscal year. Lumber and lumber product prices (with the exception of hardwood prices which held relatively constant) dropped in a manner not paralleled by this commodity during the past decade. This event was the main contributing factor to a few temporary mill closures and several slowdowns in the Ontario softwood lumber industry.

In contrast, pulp and paper prices continued to hold steady. In effect, the demand-supply situation was favour-

able enough for the pulp and paper industry to again procure a price increase in spite of highly depressed marke conditions in other segments of the forest industry.

The 1969 production of Ontario sawmills indicated that hardwood lumber production increased by three per cent over the previous year, whereas the softwood production advanced less than one per cent irrespective of a significantly increased production capacity.

Utilization of sawmill residues for the production of pulp chips continued to increase as the 700,000 bone-dry ton year level was surpassed.

The Unit's activities during the fiscal year were to a significant degree centred on two major projects; one being the design and execution of a survey to determine rural private landowner characteristics and objectives in southern On tario; and the other taking the form of a Christmas tree consumer survey in Metropolitan Toronto.

The rural private landowner survey was conducted through a mail questionnaire during the summer of 1969 in the eight southern administrative districts of the Department. Five per cent of all landowners, with more than fifty acres of rural property, were included in the sample. More than fifty per cent of the questionnaires were returned, and 3,963 of them were analyzed with the assistance of electronic data-processing equipment.

The purpose of the survey was to determine the genera socio-economic characteristics of the rural landowners, their objectives of ownership, and attitudes toward woodland management. Certain other measures, such as the availability of timber, interest in reforestation, and recreation, were also obtained.

The survey indicates that 59 per cent of the landowners are farmers; yet three-quarters of the owners grew up primarily in rural areas. The implication is that farmers are more often turning to non-farm occupations.

On the other hand, the non-residents comprise only 14 per cent of the total owners of larger rural properties. They, however, did account for 38 per cent of the total land acquisitions since 1964 and are gaining in prominence.

The rural residents and non-resident landowners reflect different ownership objectives. The farmer or rural non-farm landowner still rates timber production for commercial or personal consumption as a frequent objective of woodland ownership, whereas many of the non-residents have other goals, such as aesthetics or recreation, in mind While only five landowners in every twenty expressed ar interest in having a portion of their property reforested.

	Northwestern Region*	Northeastern Region*	Southern Region*	Quebec	U.S.A.
Production					
No. of producing mills	13	37	25	_	_
Quantity (bone-dry tons)	219,752	318,583	161,920	_	_
Percentages of total	31.4%	45.5%	23.1%	_	_
Consumption			2	_	5
No. of consuming mills	4	6	3	00.000	10.400
Quantity (bone-dry tons)	342,569	220,394	29,552	88,260	19,480
Percentages of total	48.4%	31.5%	4.2%	12.6%	2.8%

Department's Administrative Regions.

sixteen out of every twenty owners were not familiar with The Woodlands Improvement Act assistance program.

During the December holiday season, a telephone survey of the Metropolitan Toronto Christmas tree market was conducted in co-operation with the Ontario Christmas Tree Growers Association. The essential objective of the survey was to determine the impact of the artificial tree on the natural tree market, and was designed to correlate the various socio-economic characteristics of the tree consumer with his tree purchasing behaviour.

This market was found to be composed of households such that 28 per cent did not have a tree of any type, 33 per cent had artificial trees, and 39 per cent had natural trees. In addition to providing the specific details relating to that product's market size, economic prospects and future outlook, the survey provided considerable experience and insight into the practical aspects of survey design and consumer acceptance.

In addition to the special studies described, the Unit was primarily occupied in collecting and analyzing information and statistics as pertaining to the production, transportation and marketing of timber. In this endeavour, activities included statistical analysis, the conduction of various feasibility studies, the promotion of industrial activity, and the provision of advice and information available to Timber Branch, other government departments, and private firms or individuals.

LICENSING OF MILLS

Mills licensed under The Crown Timber Act are distributed as shown in the following table. The trend toward fewer mills continues.

Licensed Mills	1967	1968	1969
SAWMILLS:			
Lumber capacity over 50 M fbm	28	27	31
Lumber capacity 10 to 50 M fbm	100	101	92
Lumber capacity under 10 M fbm	644	593	596
Miscellaneous sawn products	96	99	96
VENEER MILLS	29	29	30
PULP MILLS	25	25	24
Total	922	874	869

TIMBER SALES SECTION FOREST RESOURCES INVENTORY UNIT

Aerial Photography was completed on 19,700 square miles, covering parts of the Forest Districts of Parry Sound, Pembroke, Lindsay, North Bay, Tweed, Kemptville and Lake Simcoe. In the re-inventory program, field work was carried out on 9,400 square miles in the Sioux Lookout District.

Forest Stand maps and tabulated inventory data were completed on 10,310 square miles and covered the Dryden, Red Lake and the Sioux Lookout Crown Management Units. The co-operative forest inventories were extended to include areas under licence for the Dryden Paper Co. Ltd., Lac Seul Land & Lumber Ltd. and the Ontario-Minnesota Pulp

Co. Ltd. (Seine River Conc.). The Multiplex machine was used to plot the contour and form lines of three Provincial Parks covering an area of 9.097 acres.

The photo processing unit produced 143,092 contact prints, 2,027 mosaics, 5,402 enlargements, 547 diapositives, 749 copy negatives and 2,991 square feet of repropositives.

GROSS VALUE OF PHOTO PROCESSING PRODUCTION

Year	Cash Receipts	Department Work	Total
1966-67	\$56,754.20	\$31,296.58	\$ 88,050.78
1967-68	53,270.95		84,113.37
1968-69	63,451.15	51,258.79	114,709.94
1969-70	79,280.06	53,496.76	132,786.82

MANAGEMENT PLANNING UNIT

The development of forest areas is based on management plans that provide detailed information about the volume of annual cut, cutting methods, regeneration treatments, road and camp locations, and other facts essential to orderly management.

Standard management plans are based on inventory data gathered using photo interpretation, point sampling, and computer compilation methods. The information is entered in stand ledgers, which also serve as a record of changes. Standard plans have been prepared following the re-inventory of Crown management units started in 1958. The essentials of this type of planning are contained in the Manual of Management Plan Requirements.

The initial management plans, based on the inventory method used prior to 1958, are retained until replaced with standard plans, and form the basis for the management of a large proportion of the Crown management units in the Province.

Management plans form a framework into which operating plans are fitted. An operating plan shows in detail the stands to be cut, regenerated, and tended, and the roads to be built and other improvements to be made to carry out operations on the management units.

1. Crown Management Units. The plans for these units are prepared by Department staff. There are 79 Crown management units comprising an area of 94,644 square miles with 70 management plans:

13 plans being processed for Ministerial
approval
30 initial management or operating plans
in force
2. Company Management Units. The Management plans
for Company Management Units are prepared by the licensees. There are 57 company units with 93,613 square miles
under licence to 38 companies. The status of management
planning for these units are as follows:
50 approved management plans85,792 sq. mi
4 plans being processed for Ministerial
approval
3. Agreement Forest Units. The management plans for these units are prepared by Department staff. There are 60 units
covering approximately 360 square miles (or 230,352 acres)
with 60 management plans. The status of management
planning is as follows:
18 approved plans
13 plans being processed for approval 32,252 acres 12 plans in process of preparation 45,074 acres
17 units on annual plans and land acquired
since 1960 to 1962 inventory

18 537 sq. m

27 standard management plans in force

ACCESS ROADS

A total of 105.6 miles of new roads was constructed, and 106.7 miles of existing roads were improved during the fiscal year. Road work was carried out under two categories

1. Logging Access Roads are primarily designed for the extraction of timber products. The costs of the road are recovered over a five-year period through an increase in stumpage rates on the timber which has been made accessible. Some 16.4 miles of new roads were built, and 9.3 miles were improved.

CROWN TIMBER SALES, 1969-70

	Square	
	Miles	1
New Licences issued under		
Section 2 C.T.A.	11	1.6
New Licences issued under		1
Section 3 C.T.A.	6.247	7 4
New Licences issued under	-/	
Section 5 C.T.A.	41	L
TOTAL	6.300	11
Abandonments: Licensed areas in the amount of		
square miles were abandoned.	3,300	

AREAS UNDER CROWN TIMBER LICENCE

reas in square miles, March 31

ear	Licences under Section 2 C.T.A.	Licences under Section 3 C.T.A.	Licences under Section 5 C.T.A.	Total Area
966	 2,466.7	100,362.8	1.2	102,830.7
967	 2,006.5	104,269.9	nil	106,276.4
968	 1,704.2	104,134.6	74.0	105,912.8
969	 1,664.7	101,924.3	74.0	103,663.0
970	 1,497.6	98,661.9	115.8	100,275.3

2. Forest Access Roads are built for a variety of purposes such as timber extraction, forest improvement, forest protection, hunting and fishing research, and other forest uses. Under this category, 89.2 miles of new roads were built, and 97.4 miles were improved.

SCALING

Scaling is carried out in the Province to determine quantities of wood cut from Crown lands for revenue, for forest management, and for statistical analysis of economic conditions and trends in the wood-using industries.

Continual attention to the fast-changing techniques of cutting and moving wood from the stump to the mill has encouraged and brought about new concepts of wood measurement. These resultant changes have, as well, been directed towards speeding up and simplifying scaling operations at a minimum cost, while retaining control over the movement of wood. The most promising of the new wood measurement methods are tree-length scaling, weight scaling, and sample scaling.

Computer analysis of scaling data and preparation of Crown dues accounts is now effective across the Province and is the basis of a monthly billing system.

Scaling examinations were held at the following locations on the dates noted: Huntsville, May 1-2, 1969; North Bay, May 30, 1969; and North Bay, September 26, 1969. A total of 90 new scalers were licensed at the three courses, and 339 licences were renewed for a three-year period.

VOLUME AND VALUE OF WOOD CUT FROM AGREEMENT FORESTS, 1969-70

	Volume	Value
Sawlogs (cu. ft.)	160,541.04	\$24,034.28
Poles, Posts (cu. ft.)	5,995.48	2,350.31
Pulpwood (cords)	20,605.31	56,159.43
Fuelwood (cords)	319.53	1,717.66
Miscellaneous		3,744.60
Total, all Products	1,945,147.92*	\$88,006.28

^{*}Equivalent cu. ft.

SUMMARY OF VOLUME AND VALUE OF WOOD CUT FROM CROWN LAND, 1969-70

Species	Volume Cu. Ft.	Stumpage Value
Softwoods		
White Pine	14,290,115.14	\$ 1,010,896.35
Red Pine	4,570,859.63	330,552.42
Jack Pine	121,391,036.86	3,183,218.75
Spruce	221,447,572.81	8,240,960.62
Hemlock	2,251,047.47	66,570.81
Balsam	13,676,874.63	299,519.65
Cedar	184,800.95	7,053.85
Tamarack	22,061.91	660.60
Conifers	180,820.12	3,521.16
Fuelwood	134,426.65	899.23
Christmas Trees	41,466.50	4,130.45
Total	378,191,082.67	\$13,147,983.89
Hardwoods		
Maple	5,235,236.02	322,121.03
Yellow Birch	4,587,945.36	478,425.99
White Birch	2,241,421.16	46,659.58
Oak	311,279.40	17,664.70
Beech	331,534.41	11,398.83
Ash	52,803.11	2,289.40
Elm	170,138.86	8,704.23
Basswood	324,598.24	24,250.67
Butternut	464.86	24.87
Cherry	20,576.60	844.67
Poplar	24,993,861.55	249,099.78
Hardwood	13,475,034.76	114,352.63
Fuelwood	413,659.30	4,140.33
Total	52,158,553.63	\$ 1,279,976.7
Grand Total	430,349,636.30	\$14,427,960.60

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1968-9

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Sti
CORDAGE					
Pulpwood Rough	White Pine		15,936.28 _{Cords} 2,997.08	1,354,583.80 254,751.80	27
	Jack Pine		355,120.13 190.79	30,185,211.90	776
	Pine-all		891,466.89	16,217.15 75,771,980.10	2,899
	Hemlock Balsam		1,784.85 51,707.28	151,712.25 4,395,118.80	3 93
	Cedar Tamarack		508.70 338.07	43,239.50 28,735.95	1
	Conifers		13.93	1,184.05	
	Maple Yellow Birch		7,312.27 191.78	621,542.95 16,301.30	6
	White BirchOak		11,003.60 11.22	935,306.00 953.70	19
	Beech		9.41 6.65	799.85 565.25	
	Elm		21.00	1,785.00	
	Poplar Hardwood		117,270.99 53,956.90	9,968,034.15 4,586,336.50	96, 49,
	Total		1,509,847.82	128,334,360.00	3,981,
Pulpwood Peeled	Jack Pine Spruce		1,694.70 6,803.65	168,159.60 679,738.75	4, 24,
	Balsam		120.20	12,020.00	۷.,
	Tamarack		.05 .60	5.00 60.00	
	Poplar Hardwood		9,825.81 848.78	974,827.20 74,066,75	8,
	Total		19,293.79	1,908,877.30	38,
Veneer Bolts	Jack Pine		57.69 308.72	4,903.65 26,241.20	
	Balsam		7.28	618.80	
	Poplar		4,279.12 15,528.12	363,725.20 1,319,890.20	6) 13
- 1	Total		20,180.93	1,715,379.05	20
Fuelwood	Jack Pine Spruce		137.17 19.59	11,659.45 1,665.15	
	Balsam		67.73	5,757.05	
	Softwood		2,771.82 26.65	235,604.70 2,265.25	2
	Hardwood		4,572.00	388,620.00	4
	Total Cordage		7,594.96 1,556,917.50	645,571.60	4.045
	- Cordage		1,330,317.30	132,604,187.95	4,045

MMARY

MARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1968-9 (continued)

	Species	Pieces_	Volume	Equivalent Cubic Feet	Stumpage \$
S, LONG	TIMBERS				
.ogs	White Pine	398,663	721,389.31 Cu. Ft.	721,389.31	11,955.30
0-	Red Pine	1,513	7,425.64	7,425.64	253.19
	lack Pine	3,327,442	13,514,846.57	13,514,846.57	336,688.03
	Spruce	7,328,314	24,410,143.66	24,410,143.66	889,410.43
	Hemlock	308	1,258.86	1,258.86	20.77
	Balsam	471,830	1,810,547.60	1,810,547.60	33,580.81
	Tamarack	4,480	13,374.00	13,374.00	346.46
	Conifers	36,300	81,698.60	81,698.60	1,348.01
	Maple	5,376	37,475.36	37,475.36	226.20
	Yellow Birch	4	28.20	28.20	.33
	White Birch	1,687	8,802.84	8,802.84	88.56
	Beech	5	13.23	,13.23	.14
	Ash	50	121.45	121.45	1.23
	Flm	25	54.66	54.66	.55
	Basswood	73	219.48	219.48	2.19
	Poplar	26,849	86,601.49	86,601.49	1,015.01
	Hardwood	475,188	1,327,598.27	1,327,598.27	11,112.97
	Total	12,078,107	42,021,599.22	42,021,599.22	1,286,050.18
ac	White Pine	120,131	1,369,833.87	1,369,833.87	85,411.87
gs-	Red Pine	136,531	1,203,511.16	1,203,511,16	74,531.19
oic Feet		3,223,535	16,882,617.50	16,882,617.50	497,946.97
	Jack Pine	3,412,986	17,274,272.52	17,274,272.52	683,725.52
	Spruce	67	7,479.54	7,479.54	313.29
	Hemlock	227,030	1,315,961.80	1,315,961.80	29,403.18
	Balsam	1,331	85,010.02	85,010.02	1,806.00
	Cedar	430	1,045.04	1,045.04	36.84
	Tamarack	20	36.890.25	36,890.25	2,165.07
	Maple	229	83,244.26	83,244.26	2,992.71
	Yellow Birch	54,886	440.380.47	440.380.47	8,133.20
	White Birch	34,000	1,425.44	1,425.44	71.28
	Oak	1.000	67,164.55	67,164.55	432.78
	Ash	1,099	,	32,909.30	228.67
	Elm	205 571	32,909.30	4,762,669.60	52,772.55
	Poplar	385,571	4,762,669.60	294.50	8.84
	Hardwood		294.50	294.30	
	Total	7,563,846	43,564,709.82	43,564,709.82	1,439,979.96
er Logs—	White Pine	88	785.12	785.12	27.79
bic Feet	Jack Pine	288	1,726.58	1,726.58	46.51
	Spruce	47,374	342,692.64	342,692.64	12,254.88
	Yellow Birch	5,479	51,880.12	51,880.12	622.58
	White Birch	51,319	291,046.28	291,046.28	4,429.81
	Poplar	428,942	2,944,653.00	2,944,653 00	40,590.07
					57,971.64

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1968-9 (continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stum
LOGS, LONG	TIMBERS (continued)				
Long Timber	White Pine	1.329	17.743.70	17,743.70	1.
Long Timber	Red Pine	25.027	597,211.48	597,211.48	70.
	lack Pine	15,495	267,530,14	267,530.14	17,
	Spruce	27,754	135,315.95	135,315.95	8,
	Hemlock	2,753	67,700.46	67,700.46	3,
	Balsam	765	1,676.26	1,676.26	
	Cedar	603	3,007.17	3,007.17	
	Tamarack	61	869.24	869.24	
	Conifers	305	7,737.80	7,737.80	
	Maple	43	956.55	956.55	
	Yellow Birch	18	529.43	529.43	
	White Birch	2,485	4,739.67	4,739.67	
	Beech	7	163.49	163.49	
	Ash	i	15.82	15.82	
	Elm	9	233.47	233.47	
	Basswood	1	74.18	74.18	
	Poplar	2,667	6,272.56	6,272.56	
	Total	79,323	1,111,777.37	1,111,777.37	103,
Sawlogs-MBM	White Pine	1,124,471	89,922.32	12 229 501 55	1,079,
Jawiogs William				13,228,591.55	
	Red Pine	259,966	15,558.81	2,367,528.40	173,
	Jack Pine	170,472	4,402.10	746,183.43	23,
	White Spruce	340	24.40	3,580.17	
	Spruce	286,277	12,227.64	1,932,114.45	107,
	Hemlock	186,014	13,253.73	1,960,779.59	58,
	Balsam	13,612	317.15	55,959.32	3,
	Cedar	4,983	135.94	23,861.65	1,
	Tamarack	679	26.99	4,600.22	
	Maple	447,759	33,021.05	4,931,675.62	287,
	Yellow Birch	532,503	38,296.30	5,516,333.91	608,
	White Birch	122,586	5,973.21	917,075.39	41,
	Oak	27,855	1,566.01	245,948.50	14,
	Beech	23,257	1,422.22	221,004.08	6,
	Ash	5,172	275.98	44,018.74	2,
	Elm	10,609	1,001.38	152,187.86	7,
	Basswood	40,237	2,299.40	359,069.22	25,
	Butternut	40,237	2,299.40	,	25,
				516.64	
	Cherry	1,661	94.10	14,180.88	27
	Poplar	150,387	7,637.69	1,207,283.14	27,
	Total	3,408,904	227,459.55	33,932,492.76	2,470,
	Total Logs, Long Timber	23,663,670	90,558,329.70	124,263,362,91	5,358,

MMARY

MARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1968-9 (continued)

	Species	Pieces	Volume	Equivalent Cubic Feet	Stumpage 5
ELENGTH M	ATERIAL				
LLINGITIM	White Pine	66	1,221,79 Cu. Ft.	1,221.79	80.64
	Red Pine	280	5,633.92	5,633.92	371.84
	lack Pine	4,268,468	45,022,308.03	45,022,308.03	1,177,144.67
	White Spruce	102,193	1,754,527.55	1,754,527.55	60,827.70
	Black Spruce	1,930,622	10,328,669.73	10,328,669.73	357,435.65
	Spruce	9,686,905	61,702,634.86	61,702,634.86	2,267,286.84
	Balsam	655,843	4,321,102.97	4,321,102.97	84,842.03
	Cedar	40	1,769.06	1,769.06	35.38
	Tamarack	20	201.72	201.72	4.03
	Poplar	8,731	232,277.86	232,277.86	1,635.85
	White Pine	425	77.96 MBM	15,771.16	622.15
	Red Pine	206	22.59	4,348.79	184.89
	Jack Pine	719,147	24,099.63	5,247,281.58	92,537.79
	Spruce	650,698	18.491.56	3,709,496.95	111,854.57
	Balsam	26,720	918.61	172,049.84	5,511.66
	Cedar	13	.43	80.97	2.15
	White Birch	4	.21	39.92	.32
	Total	18,050,381		132,519,416.70	4,160,378.16
CELLANEOU		-,	00.07	7 722 45	272.9
ng Timbers	Jack Pine	74	90.97 26.30	7,732.45 2,235.50	89.1
. Ft.	Spruce	17	87.00	7,395.00	87.0
	Conifers	56	196.74	16,722.90	98.3
	White Birch	56	132.00	11,220.00	132.0
	Hardwood	1.442	4,056,25	4,056.25	139.9
	Jack Pine	1,443	463.92	463.92	19.1
	Black Spruce	11,111	43.114.44	43,114.44	2.070.1
	Spruce	250	1,173.51	1,173.51	15.2
	White Birch	250	1,749.48	1,749.48	53.2
	Poplar Hardwood	3,000	53.55	53.55	60.0
r Poles (cords)	Hardwood		756.92	64,338.20	1,135.3
s (Lin. Ft.)	Cedar	29,287 225	220,566.00 1,800.00	44,113.20 360.00	3,058.3 36.0
stmas Trees	Spruce	93,495	93,495.00	46,747.00	4,719.7

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1968-9 (continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stump \$
MISCELLA	NEOUS (continued)				
Other	White Pine		609,048.36	662,797.38	46,5
	Red Pine		128,742.21	131,521.77	10,1
	Jack Pine		672,665.93	2,114,108.33	58,6
	White Spruce		6,426.82	6,426.82	3
	Black Spruce		24,421.45	24,421.45	1,4
	Spruce		601,124.71	834,087.79	28,5
	Hemlock		161,495.33	166,482.53	6,7
	Balsam		128,970.35	140,511.93	3,4
	Cedar		54,417.57	54,417.57	1,4
	Tamarack		11,200.40	11,926.50	4
	Maple		331,290.73	334,354.45	17,8
	Yellow Birch		111.231.79	111,231.79	9,2
	White Birch		440,083.66	450,740.64	10,3
	Oak		72,649.36	83,015.29	4,7
	Beech		33,562.22	33,562.22	1,0
	Ash		12,943.98	13,096.62	(
	Elm		11,416.01	11,416.01	
	Basswood		32,937.09	33,119.66	2,6
	Poplar		998.464.51	1,031,043.52	25,
	Hardwood		124,276.73	249,739.97	2,
	Total	139,084		6,749,497.64	244,

GRAND TOTAL	41,853,135	396,136,465.20	13,809,}
Number of District Cutting Licences issued and included in al		940.	

Conversion factors: 1 cubic foot = 5.35 board feet

1 cord = 85 cubic feet

MMARY

MARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1969-70

	Species	Pieces	Volume	Equivalent Cubic Feet	Stumpage \$
DAGE					
	White Pine		4,698.27	399,352,95	12,758.26
ou nough	Red Pine		5,383.17	457,569.45	12,180.94
	Jack Pine		387,036.36	32,900,090.60	861,767.80
	Pine		120.58	10,249.30	177.53
	All Spruce		950,220.82	80,769,047.65	3,137,802.38
	Hemlock		5,248.36	446,110.60	8,252.62
	Balsam		64,548.60	5,487,081.60	127,701.15
	Cedar		447.31	38,021.35	875.01
	Tamarack		44.49	3,781.65	73.85
	Conifers		823.90	70,031.50	1,208.93
	Maple		1,486.25	126,331.25	1,130.92
	Yellow Birch		168.77	14,345.45	126.47
DAGE ood Rough	White Birch		10,610.93	901,929.05	10,315.58
	Oak		21.24	1,805.40	20.61
	Beech		30.46	2,589.10	22.85
	Black Ash		0.90	76.50	2.68
	Ash		7.38	627.30	6.85
	Elm		17.27	1,467.95	19.81
	Black Cherry		5.00	425.00	5.00
	Poplar		167,278.20	14,232,088.65	114,006.91
	Hardwoods		55,211.91	4,693,012.50	50,210.54
	Total		1,653,410.17	140,556,034.80	4,338,666.69
ood Peeled	Jack Pine		1,462.30	145,660.15	3,602.55
	All Spruce		16,175.76	1,615,172.40	58,221.00
	Balsam		51.46	4,714.60	103.31
	White Birch		21.68	2,168.00	18.95
	Poplar		6,477.27	627,975.45	6,092.42
	Hardwoods		637.87	54,680.65	557.57
	Total		24,826.34	2,450,371.25	68,595.80
r Rolts	lack Pine		72.01	6,120.85	151.23
1 00103	All Spruce		1.240.42	105,435.70	4,227.03
	Balsam		57.27	4,867.95	108.83
			1,140.40	96,934.00	1,168.46
	White Birch		24,557.48	2,087,385.80	17,165.34
	Poplar		27,067.58	2,300,744.30	22,820.89
	Total				
ood	Jack Pine		518.15	44,042.75	259.13
	Conifers		1,063.34	90,383.90	640.10
	Hardwoods		4,866.58	413,659.30	4,140.33
	Total		6,448.07	548,085.95	5,039.56
	Total Cordage		1,711,752.16	145,855,236.30	4,435,122.9-

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1969-70 (continued)

Jack Pine 3,867,021 15,287,260.08 15,287,26 All Spruce 7,695,564 25,022,067.46 25,022,06 Hemlock 4,957 36,453.28 36,43 Balsam 597,857 2,054,050.35 2,054,0 Cedar 1,454 3,820.00 3,83 Tamarack 2,927 7,658.46 7,6 Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,79 Poplar 56,843.89 56,84 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322,22 2,33 Balsam 355,686 1,527,993.92 1,527,99<	29.89 50.08 378 57.46 917 53.28 50.35 39 20.00 58.46 19.52 1
Pulip Logs White Pine Red Pine 136,695 Red Prine 477,935,91 Red Prine 477,935,91 Red Prine 477,935,91 Red Prine 477,935,91 Red Prine 4,629,89 Red Prine 1,628,49 Red Prine 1,628,49 Red Prine 1,628,49 Red Prine 1,761,219,52 Red Prine 1,761,219,52 Red Prine 1,761,219,52 Red Prine 1,761,219,52 Red Prine 1,761,2219,52 Red Prine <th< td=""><td>29.89 50.08 378 57.46 917 53.28 50.35 39 20.00 58.46 19.52 1</td></th<>	29.89 50.08 378 57.46 917 53.28 50.35 39 20.00 58.46 19.52 1
Jack Pine	50.08 378 57.46 917 53.28 50.35 39 20.00 58.46 19.52 1
All Spruce 7,695,564 25,022,067.46 25,022,06 Hemlock 4,957 36,453.28 36,43 Balsam 597,857 2,054,050.35 2,054,05 Cedar 1,454 3,820.00 3,8 Tamarack 2,927 7,658.46 7,6 Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,79 Poplar 56,843.89 56,84 Hardwoods 10,398 141,708.45 141,707 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,33 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,05	57.46 917 53.28 50.35 39 20.00 58.46 19.52 1
Hemlock 4,957 36,453.28 36,4 Balsam 597,857 2,054,050.35 2,054,05 Cedar 1,454 3,820.00 3,85 Tamarack 2,927 7,658.46 7,65 Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,79 Poplar 56,843.89 56,84 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,951 Hemlock 155 2,322.22 2,33 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,05	53.28 50.35 20.00 58.46 19.52 1
Balsam 597,857 2,054,050,35 2,054,0 Cedar 1,454 3,820,00 3,83 Tamarack 2,927 7,658,46 7,6 Conifers 53,151 104,719,52 104,7 White Birch 7,796,86 7,74 Poplar 56,843,89 56,8 Hardwoods 10,398 141,708,45 141,70 Total 12,371,335 43,204,944,15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219,52 1,761,2 Red Pine 130,873 1,033,611,29 1,033,6 Jack Pine 2,867,389 13,564,224,68 13,564,22 All Spruce 3,632,788 17,824,951,47 17,824,95 Hemlock 155 2,322,22 2,37 Balsam 355,686 1,527,993,92 1,527,99 Cedar 5,984 36,090.06 36,09	50.35 39 20.00 58.46 19.52 1
Cedar. 1,454 3,820.00 3,8 Tamarack 2,927 7,658.46 7,6 Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,7 Poplar 56,843.89 56,8 Hardwoods 10,398 141,708.45 141,7 Total 12,371,335 43,204,944.15 43,204,9 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,2 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,37 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	20.00 58.46 19.52 1 96.86
Tamarack 2,927 7,658.46 7,6 Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,79 Poplar 56,843.89 56,8 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,37 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	58.46 19.52 1 96.86
Conifers 53,151 104,719.52 104,7 White Birch 7,796.86 7,79 Poplar 56,843.89 56,8 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322,222 2,37 Balsam 355,686 1,527,993.92 1,527,99 Cedar 5,984 36,090.06 36,09	19.52 1 96.86
White Birch 7,796.86 7,779 Poplar 56,843.89 56,8 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322,222 2,37 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	96.86
Poplar 56,843.89 56,8 Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322,222 2,33 Balsam 355,686 1,527,993.92 1,527,99 Cedar 5,984 36,090.06 36,09	
Hardwoods 10,398 141,708.45 141,70 Total 12,371,335 43,204,944.15 43,204,94 Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,37 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	13.89
Total	
Sawlogs (Cu. Ft.) White Pine 158,657 1,761,219.52 1,761,2 Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,77 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322,22 2,37 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09)8.45
Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,72 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,32 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	1,347,
Red Pine 130,873 1,033,611.29 1,033,6 Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,72 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,32 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	19.52 108.
Jack Pine 2,867,389 13,564,224.68 13,564,22 Pine 6,206 22,727.92 22,72 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,32 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	
Pine 6,206 22,727.92 22,72 All Spruce 3,632,788 17,824,951.47 17,824,95 Hemlock 155 2,322.22 2,32 Balsam 355,686 1,527,993.92 1,527,95 Cedar 5,984 36,090.06 36,09	
All Spruce3,632,78817,824,951.4717,824,95Hemlock1552,322.222,37Balsam355,6861,527,993.921,527,99Cedar5,98436,090.0636,09	,
Hemlock1552,322.222,33Balsam355,6861,527,993.921,527,99Cedar5,98436,090.0636,09	
Balsam 355,686 1,527,993.92 1,527,99 Cedar 5,984 36,090.06 36,09	,
Cedar 5,984 36,090.06 36,09	
	98.16
	72.45
	37.96
White Birch	
	57.57
	00.11
	50.44
	57,22
	53.99
	16.96
Poplar	
Hardwoods	
Total	
	57.64
	78.39 [*]
All Spruce	56.70
	45.81
White Birch	
Poplar 510,866 3,446,459.64 3,446,45	90.53 4
Total	

MMARY

MARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1969-70 (continued)

	Species	Pieces	Volume	Equivalent Cubic Feet	Stumpage \$
SLONGT	IMBERS (continued)				
imber	White Pine	505	14,002.11	14,002.11	1,266.84
IIIIOCI	Red Pine	25,589	615,874.87	615,874.87	68,971.00
	Jack Pine	7,919	131,459.24	131,459.24	7,162.91
	All Spruce	17,455	75,240.11	75,240.11	5,020.40
	Hemlock	747	20,430.54	20,430.54	1,137.43
	Balsam	198	757.85	757.85	41.6
	Cedar	371	3.202.97	3,202.97	161.83
	Tamarack	41	62.00	62.00	3.08
	Conifers	249	6,069.10	6,069.10	554.40
	White Birch	1	23.97	23.97	1.68
	Oak	3	56.55	56.55	3.39
		53,078	867,179.31	867,179.31	84,324.56
	Total				
gs MBM	White Pine	949,315	76,506,71	11,268,235.33	866,279.85
	Red Pine	279,206	16,125.18	2,441,678.49	179,176.5
	Jack Pine	101,382	2,711.67	460,950.99	16,516.6
	White Spruce	89	5.78	861.14	66.50
	All Spruce	272,149	12,034.70	1,910,519.64	107,093.70
	Hemlock	179,054	11,808.43	1,745,730.83	56,502.30
	Balsam	11,004	559.16	102,192.33	4,619.70
	Cedar	7,192	276.86	49,890.94	1,772.4
	Tamarack	423	13.27	2,371.83	91.0
	Maple	477,587	34,277.59	5,102,632.32	320,942.9
	Yellow Birch	433,667	31,771.75	4,560,466.14	478,209.3
	White Birch	91,479	4,571.57	700,424.08	26,032.8
	Oak	35,041	1,960.02	308,349.88	17,600.8
	Beech	38,669	2,158.85	328,945.31	11,375.9
	Ash	5,048	244.78	39,348.76	2,144.4
	Elm	12,098	1,095.27	166,603.69	8,672.0
	Basswood	40,010	2,010.58	324,444.25	24,238.3
	Butternut	41	2.49	464.86	24.8
	Black Cherry	2,082	124.38	18,504.64	829.7
	Poplar	145,827	7,532.20	1,209,338.49	27,955.1
	Total	3,081,363	205,791.24	30,741,953.94	2,150,145.2
	Total Logs, Long Timbers	23,876,334	87,982,218.70	118,518,381.40	4,989,484.7
LENGTH		0.440	264660 50 6	r. 264.660.50	13,756.9
	White Pine	9,440	364,660.59 Ct		552.5
	Red Pine	466	13,975.71	13,975.71	1,411,802.2
	Jack Pine	5,093,881	54,479,185.99	54,479,185.99	, ,
	White Spruce	93,980	1,632,111.35	1,632,111.35	56,633.8
	Black Spruce	2,434,096	11,936,325.73	11,936,329.13	414,190.5
	All Spruce	12,016,205	76,748,120.80	76,848,084.30	2,758,619.5
	Balsam	690,651	4,277,209.28	4,274,120.20	83,940.5

SUMMARY

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1969-70 (continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stu
TREE LENGTH	MATERIAL (continued)				
	, ,				
	Cedar	453	3,492.69	3,492.69	
	Tamarack	17	89.81	89.81	
	White Birch	268	1,946.78	1,946.78	
	Poplar	9,096	171,579.62	171,579.62	
	White Pine	84	18.91 A	- /	
	Red Pine	129	18.58	3,470.93	
	Jack Pine	638,796	23,376.26	4,369,393.50	8:
	All Spruce	556,102	16,920.40	3,162,689.38	98
	Balsam	29,639	1,181.86	220,907.83	
	Total	21,573,303	149,670,214.36	157,485,569.90	4,93
WEIGHT MEAS					
	Hardwoods		4,881,864.65	8,163,113.61	57
	Total		4,881,864.65	8,163,113.61	57
MISCELLANEC	DUS				
Mining Timbers	White Birch	14	37.30	3,170.50	
	Jack Pine	1,460	2,581.03	2,581.03	
	All Spruce	9,491	16,395.20	16,395.20	
Poker Poles	Hardwoods		1,759.36	149,545.60	2
Posts	Cedar	11	9.22	783.70	
	Jack Pine	820	5,740.00	1,148.00	
	Pine	1,690	642.08	2,432.00	
	All Spruce	20	120.00	24.00	
	Cedar	29,343	234,191.86	49,313.24	2
Christmas Trees	All Spruce	81,934	41,189.00	41,466.50	4
Other	White Pine		319.00	319.00	
	Red Pine		49.00	49.00	
	Jack Pine		7,474.14	7,474.14	
	All Spruce		25,177.18	25,177.18	
	Balsam		188.00	188.00	
	Cedar		186.00	186.00	
	Hardwoods		10,786.00	27,082.00	
	Total	124,783	346,844.37	327,335.09	11
	GRAND TOTAL	45,574,420		430,349,636.30	14,42
Number of District	Cutting Licences issued and included in al				89:

Conversion Factors: 1 cubic foot = 5.35 board feet

1 cord = 85 cubic feet

IMBER SALES

OM APRIL 1, 1969, TO MARCH 31, 1970

2	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
16	Lynoch Township	0.3	2	Wallace Weichenthal Hardwood Lake, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs Oak saw-logs Ash saw-logs Elm saw-logs Beech saw-logs Hardwood pulpwood Cedar pulpwood	5.10 5.10 5.25 5.00 3.00 6.00 7.00 4.00 5.00 4.00 3.00 5.00 6.00 0.50 0.10	10.00 10.00 12.00 5.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 4.50 0.25 0.60	5.00 5.00 4.00 3.00 3.00 5.00 1.50 1.50 5.00 5.00 5.00 5.00 5	20.10 per MBM 20.10 per MBM 21.25 per MBM 13.00 per MBM 11.00 per MBM 15.00 per MBM 10.00 per MBM 10.00 per MBM 18.00 per MBM 20.00 per MBM 15.00 per MBM 12.00 per MBM 12.00 per MBM 12.00 per MBM 12.00 per MBM
y 22	Dungannor Township	n 0.2	5	George Tenthorey L'Amable, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Oak saw-logs Balsam pulpwood Hardwood pulpwood	15.25 15.25 14.25 5.00 8.00 4.00 3.00 10.00 1.00	10.00 10.00 12.00 6.00 6.50 4.50 8.00 7.00 0.60 0.25	5.00 5.00 4.00 4.00 1.50 1.50 5.00 5.00 1.40 0.50	30.25 per MBM 30.25 per MBM 30.25 per MBM 15.00 per MBM 16.00 per MBM 10.00 per MBM 16.00 per MBM 22.00 per MBM 3.00 per cord 1.75 per cord
y 29	Adams and Eldorado Townships		3	George Rousson R.R. #1 Timmins, Ontario	Spruce pulpwood Jack pine pulpwood	2.00 2.00	1.20 2.00	2.80 2.00	6.00 per cord 6.00 per cord
ay 29	Mayo Township	0.3	5	O. E. Rothwell Lumber Co. Ltd. Вок 54 Lanark, Ontario	Spruce saw-logs Balsam saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs Oak saw-logs Elm saw-logs Beech saw-logs Hardwood pulpwood	10.25 10.25 4.00 6.00 10.25 8.00 4.25 15.50 6.25 3.25 8.25 8.25 0.50	12.00 6.00 5.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 5.00 4.50 0.25	4.00 4.00 3.00 3.00 5.00 1.50 1.50 5.00 5.00 5.00 5.00 5	26.25 per MBM 20.25 per MBM 12.00 per MBM 14.00 per MBM 26.25 per MBM 16.00 per MBM 28.50 per MBM 31.50 per MBM 18.25 per MBM 13.25 per MBM 13.25 per MBM 13.25 per MBM 13.25 per MBM 14.25 per MBM 1.25 per MBM

TIMBER SALES (continued)

FROM APRIL 1, 1969, TO MARCH 31, 1970

Date Sold 1969	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
June 9	Evelyn Township	0.1	8	Rudolph McChesney Lumber Co. Ltd. Box #150 267 Craft Road Timmins, Ontario	Jack pine saw-logs	0.07	0.0265	0.0235	0.12 per cu
June 17	Ashby Township	0.3	4	Tweed Veneers Ltd. P.O. Box 490 Tweed, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood Oak saw-logs Ash saw-logs Elm saw-logs Beech saw-logs Hardwood pulpwood	20.00 10.00 10.00 5.00 5.00 30.00 50.00 20.00 20.00 10.00 10.00 10.00 15.00 5.00	10.00 10.00 12.00 6.00 5.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 5.00 4.50 0.25	5.00 5.00 4.00 4.00 3.00 3.00 5.00 1.50 1.50 5.00 5.00 5.00 5.00 5	35.00 per M 25.00 per M 26.00 per M 15.00 per M 13.00 per M 38.00 per M 28.00 per M 26.00 per M 26.00 per M 20.00 per M 20.00 per M 20.00 per M 21.00 per M 5.75 per co
June 18	Cashel Township	0.4	4	Tweed Veneers Ltd. P.O. Box 490 Tweed, Ontario	Spruce saw-logs Balsam saw-logs Cedar saw-logs Hemlock saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Maple saw-logs Basswood saw-logs Oak saw-logs Elm saw-logs Beech saw-logs Hardwood pulpwood	10.00 5.00 5.00 30.00 50.00 20.00 25.00 30.00 20.00 10.00 10.00 15.00 2.00	12.00 6.00 5.00 5.00 11.00 6.50 4.50 8.00 11.00 7.00 5.00 5.00 4.50 0.25	4.00 4.00 3.00 3.00 5.00 1.50 5.00 5.00 5.00 5.00 5.00 5	26.00 per MI 15.00 per MI 13.00 per MI 38.00 per MI 28.00 per MI 31.00 per MI 43.00 per MI 22.00 per MI 20.00 per MI 20.00 per MI 20.00 per MI 21.00 per MI 21.00 per MI
June 24	Hassard Township	0.2	2	N. & H. Gagnon Contractors 310 Wilson Avenue Timmins, Ontario	Spruce pulpwood Jack pine pulpwood	1.50 1.50	0.60 0.50	2.80 2.00	4.90 per co 4.00 per co
July 10	South Canonto Township	0.6	4	M. J. Umpherson Clyde Forks Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs	25.00 25.00 24.00 20.00	10.00 10.00 12.00 6.00	5.00 5.00 4.00 4.00	40.00 per M 40.00 per M 40.00 per M 30.00 per M

continu

MBER SALES (continued)

OM APRIL 1, 1969, TO MARCH 31, 1970

	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
					Hemlock saw-logs	15.00	5.00	3.00	23.00 per MBM
					Cedar saw-logs	15.00	5.00	3.00	23.00 per MBM
					Basswood saw-logs	24.00	11,00	5.00	40.00 per MBM
					Maple saw-logs	20.00	8.00	5.00	33.00 per MBM
					Elm saw-logs	15.00	5.00	5.00	25,00 per MBM
					Ash saw-logs	15.00	5.00	5.00	25.00 per MBM
					Oak saw-logs	20.00	7.00	5.00	32.00 per MBM
					Beech saw-logs	5.00	4.50	1.50	11.00 per MBM
					White birch saw-logs	15.00	6.50	1.50	23.00 per MBM
					Poplar saw-logs	5.00	4.50	1.50	11.00 per MBM
					Balsam pulpwood	1.00	0.35	1.65	3.00 per cord
					Hardwood pulpwood	0.50	0.15	0.60	1.25 per cord
	Bridgland	0.1	3	Jack Hermiston	Yellow birch saw-logs	30.00	25.00	5.00	60.00 per MBM
	Township			R.R. #3	Maple saw-logs	5.00	5.00	5.00	15.00 per MBM
				Iron Bridge,	Spruce saw-logs	2.00	4.00	4.00	10.00 per MBM
				Ontario	Hemlock saw-logs	-	3.00	3.00	6.00 per MBM
					White pine saw-logs		10.00	5.00	15.00 per MBM
7	Denbigh	0.2	2	Darwin Weichenthal	White pine saw-logs	8.00	10.00	5.00	23.00 per MBM
	Township	0.2	_	Hardwood Lake	Spruce saw-logs	5.00	12.00	4.00	21.00 per MBM
	TOWNSHIP			Ontario	Hemlock saw-logs	3.00	5.00	3.00	11.00 per MBM
				Ontario	Cedar saw-logs	3.00	5.00	3.00	11.00 per MBM
					Basswood saw-logs	4.00	11.00	5.00	20.00 per MBN
					Maple saw-logs	4.00	8.00	5.00	17.00 per MBM
					Oak saw-logs	5.00	7.00	5.00	17.00 per MBM
					Beech saw-logs	6.00	4.50	1.50	12.00 per MBM
					White birch saw-logs	7.00	6.50	1.50	15.00 per MBM
					Poplar saw-logs	5.00	4.50	1.50	11.00 per MBN
					Balsam saw-logs	5.00	6.00	4.00	15.00 per MBM
					Hardwood pulpwood	0.50	0.25	0.50	1.25 per cord
					Spruce pulpwood	0.50	0.20	2.80	3.50 per cord
					Balsam pulpwood	0.25	0.60	1.40	2.25 per cord
					Hemlock pulpwood	0.10	0.10	1.40	1.60 per cord
				٥5	Cedar pulpwood	0.15	0.60	1:40	2.15 per cord
	lanes	3.0	1	Pierre Aubin	White pine saw-logs	1.00	10.00	5.00	16.00 per MBM
	Township			R.R. #1	Red pine saw-logs	0.50	10.00	5.00	15.50 per MBM
	. 5 TTT 15 TTP			Field, Ontario	Poplar saw-logs	2.00	3.50	1.50	7.00 per MBM
				, -	White birch saw-logs	1.00	10.50	1.50	13.00 per MBM
					White pine pulpwood		1.10	1.40	2.50 per cord
					Red pine pulpwood	_	1.10	1.40	2.50 per cord
					Jack pine pulpwood	-	0.50	2.00	2.50 per cord
					Spruce pulpwood	_	0.70	2.80	3.50 per cord
					Balsam pulpwood	_	1.10	1.40	2.50 per cord
					Hardwood pulpwood	_	0.50	0.50	1.00 per cord
									continued

TIMBER SALES (continued)

FROM APRIL 1, 1969, TO MARCH 31, 1970

Date Sold 1969	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
Aug. 19	Grant Township	1.8	1	Art Lavigne R.R. #2 Mattawa, Ontario	White pine saw-logs Red pine saw-logs Poplar saw-logs White birch saw-logs White pine pulpwood Red pine pulpwood Spruce pulpwood Balsam pulpwood Hardwood pulpwood	- - - - - - - -	10.00 10.00 3.50 10.50 1.10 1.10 0.70 1.10 0.50	5.00 5.00 1.50 1.50 1.40 1.40 2.80 1.40 0.50	15.00 per MI 15.00 per MI 5.00 per MI 12.00 per MI 2.50 per co 2.50 per co 3.50 per co 1.00 per co
Aug. 20	Denbigh Township	0.2	4	Tweed Veneers Ltd. 39 Louisa Street Tweed, Ontario	Maple saw-logs Yellow birch saw-logs Basswood saw-logs Beech saw-logs White birch saw-logs Ash saw-logs Oak saw-logs Elm saw-logs White pine saw-logs Hemlock saw-logs Cedar saw-logs Hardwood pulpwood	32.50 60.00 20.00 18.00 14.00 10.00 10.00 8.00 20.00 8.00 0.50	8.00 11.00 11.00 4.50 6.50 5.00 7.00 5.00 10.00 5.00 5.00 0.25	5.00 5.00 5.00 1.50 1.50 5.00 5.00 5.00	45.50 per ME 76.00 per ME 36.00 per ME 24.00 per ME 22.00 per ME 22.00 per ME 18.00 per ME 16.00 per ME 16.00 per ME 1.25 per co
Aug. 22	Devitt Township	1.2	7	Jack Christianson P.O. Box 70 Mattice, Ontario	Spruce saw-logs Tamarack saw-logs Balsam saw-logs Cedar saw-logs Poplar saw-logs Spruce pulpwood Balsam pulpwood Poplar pulpwood of veneer quality White birch pulpwood of veneer quality	0.025 - - - - 2.13 - -	0.01 0.0265 0.0265 0.0265 0.0042 0.85 2.25 0.015	0.033 0.0165 0.0165 0.0165 0.006 2.80 1.40 0.006	0.068 per c 0.043 per c 0.043 per c 0.043 per c 0.0102 per c 5.78 per co 3.65 per cc 0.021 per c

MBER SALES (continued)

OM APRIL 1, 1969, TO MARCH 31, 1970

	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
. 11	Casgrain	0.7	5	Normand Grondin	Spruce saw-logs Balsam saw-logs	0.037	0.007 0.0235	0.033 0.0165	0.077 per cu. ft. 0.04 per cu. ft.
	Township			Box 1045 Hearst, Ontario	Cedar saw-logs Tamarack saw-logs White birch saw-logs Poplar saw-logs	- - -	0.0235 0.0235 0.0235 0.012 0.012	0.0165 0.0165 0.0060 0.0060	0.04 per cu. ft. 0.04 per cu. ft. 0.018 per cu. ft. 0.018 per cu. ft.
					Spruce pulpwood Balsam pulpwood Poplar pulpwood	3.15 — —	0.60 2.00 0.60	2.80 1.40 0.50	6.55 per cord 3.40 per cord 1.10 per cord
					Poplar pulpwood of veneer quality White birch pulpwood of veneer quality	- -	0.012	0.006	0.018 per cu. ft. 0.018 per cu. ft.
					•		40.00	5.00	15.00
ot. 2	2 Grant and Charlton Townships	1.4	1	Ray Champagne Ltd. Mattawa, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs	- - -	10.00 10.00 0.007	5.00 5.00 0.033	15.00 per MBM 15.00 per MBM 0.04 per cu. ft.
					White birch saw-logs Poplar saw-logs Spruce pulpwood	_ _ _	10.50 3.50 0.70	1.50 1.50 2.80	12.00 per MBM 5.00 per MBM 3.50 per cord
					Balsam pulpwood White pine pulpwood Red pine pulpwood Hardwood pulpwood	- - -	1.10 1.10 1.10 0.50	1.40 1.40 1.40 0.50	2.50 per cord 2.50 per cord 2.50 per cord 1.00 per cord
0 5. 1		gh- 0.5	4	Fleron Lumber	White pine saw-logs	10.00	15.00	5.00	30.00 per MBM
	net Township		-+	Company Limited R.R. #4 Hwy. 17E	Spruce saw-logs Balsam saw-logs Cedar saw-logs	5.00 3.50 3.00	11.00 11.00 7.00 15.00	4.00 4.00 3.00 5.00	20.00 per MBM 18.50 per MBM 13.00 per MBM 26.75 per MBM
				Sault Ste. Marie Ontario	Maple saw-logs Yellow birch saw-logs	6.75 31.50	25.00	5.00	61.50 per MBM

CROWN TIMBER LICENCES, 1969-70

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type Transac
April 10/69	Regional Logging Industries Limited P.O. Box 519, Dryden, Ontario	MacFie Township	1969	New
April 17/69	The Great Lakes Paper Company Limited P.O. Box 430, Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
April 17/69	Central Timber Products P.O. Box 431, Red Lake, Ontario	Balmer, Byshe & Ranger Townships	1972	Reissu
April 17/69	Patrick Robillard P.O. Box 539, Red Lake, Ontario	Unsurveyed Territory Kenora District	1971	Reissu
April 17/69	Pearson Forest Products Limited Box 219, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1971	Reissue
April 17/69	William Rothenburger 489 Lyon Avenue, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1974	Reissue
April 17/69	The Great Lakes Paper Company Limited P.O. Box 430, Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
April 17/69	William G. Gaudry R.R. #1, Sleeman, Ontario	Senn Township	1969	New
April 17/69	Northern Forest Products Limited P.O. Box 990, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1971	Reissue
April 17/69	Northern Forest Products Limited P.O. Box 990, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Kenora District	1979	Reissue
April 17/69	J. E. Martel and Sons Lumber Ltd. Box 488, Chapleau, Ontario	Lipsett Township	1971	Reissue
April 17/69	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 1, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
April 17/69	Northern Forest Products Limited P.O. Box 990, Postal Station "P" Thunder Bay, Ontario	Pardee Township	1971	Reissue
April 17/69	George Kenneth Stringer Box 983, South Porcupine, Ontario	Gowan & Wark Townships	1971	Reissue
April 17/69	Abitibi Paper Company Limited Toronto-Dominion Centre Toronto 1, Ontario	Goodfellow & Fallis Townships	1970	New

continued

CROWN TIMBER LICENCES, 1969-70 (continued)

SSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

ate	Licensee	Location	Expiry March 31st	Type of Transaction
pril 24/69	Sam Mitchell Englehart, Ontario	Mulligan Township	1971	Reissue
pril 24/69	Pembroke Lumber Company Limited P.O. Box 201, Pembroke, Ontario	White, Edgar & Fitzgerald Townships	1970	Reissue
1ay 1/69	Reginald F. Walker Englehart, Ontario	Mulligan Township	1971	Reissue
1ay 1/69	Rudolph-McChesney Lumber Company Box 150, Timmins, Ontario	Hillary Township	1974	Reissue
lay 1/69	Woollings Forest Products Limited Englehart, Ontario	Sharpe Township	1972	Reissue
1ay 1/69	Jake E. Stewart Limited R.R. # 1, Deep River, Ontario	Head, Bronson & Rolph Townships	1971	Reissue
1ay 1/69	Temiskaming Wood Products Limited Main Street, Kirkland Lake, Ontario	Arnold, Gauthier & Katrine Townships etc.	1972	Reissue
1ay 1/69	Weldwood of Canada Ltd. P.O. Box 395, Norwich Avenue Woodstock, Ontario	Sherborne, McClintock & Livingston Townships etc.	e 1972	Reissue
1/69	Gillies Brothers & Co. Ltd. P.O. Box 68 Portage Du'Fort, Quebec	Fitzgerald Township	1971	Reissue
May 1/69	Wm. Pollock & Son Limited Englehart, Ontario	Sharpe & Truax Townships May 1/69	1971	Reissue
May 1/69	Widjiitiwin Corporation St. May's Indian School Box 40, Kenora, Ontario	Unsurveyed Territory Kenora District	1972	New
May 8/69	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Dunmore Township	1970	New
May 8/69	Oscar Styffe Limited Postal Station "P" Thunder Bay, Ontario	Hardwick & Lismore Townships	1971	Reissue
May 8/69	Joseph Kirouac Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1970	New
May 8/69	Leonard Jones Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1970	New
May 8/69	Gerald Junkin Bobcaygeon, Ontario	Galway Township	1972	Reissue
May 8/69	Maurice Ouellette P.O. Box 64, Dryden, Ontario	Unsurveyed Territory Kenora District	1970	New

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CROWN TIMBER LICENCES, 1969-70 (continued)

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type (
May 8/69	Henry Johnson Timber Co. Ltd. 369 Queen Street E. Sault Ste Marie, Ontario	3H Township	1972	New
May 8/69	Bruce Campbell Quibell, Ontario	Unsurveyed Territory Kenora District	1970	New
May 8/69	Woollings Forest Products Ltd. Englehart, Ontario	Cook Township	1972	Reissu
May 8/69	Hector Clouthier R.R. #6, Pembroke, Ontario	Head Township	1972	Reissue
May 8/69	J. H. Normick Ltee Box 2500, La Sarre, Quebec	Sargeant & Berry Townships	1970	New
May 15/69	Rene Ross Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1970	New
May 15/69	J. H. Normick Ltee Box 2500, La Sarre, Quebec	Marriott, Stoughton & Frechville Townships etc.	1970	New
May 15/69	Oscar Styffe Limited Box 146, Postal Station "P" Thunder Bay, Ontario	Hardwick, Lismore & Robbins Townships etc.	1971	Reissue
May 15/69	Feldman Timber Company Limited Timmins, Ontario	Godfrey Township	1970	Reissue
May 15/69	Malette Lumber Limited P.O. Box 91, Timmins, Ontario	Cote & Massey Townships	1970	New
May 15/69	Kerr Addison Mines Limited Virginiatown, Ontario	Cassian, Katrine & McVittie Townships etc.	1972	Reissue
May 15/69	Chapleau Lumber Company Limited Chapleau, Ontario	Lipsett Township	1971	Reissue
May 15/69	Mattice Lumber Company Limited Mattice, Ontario	Fleck Township	1971	New
May 15/69	A & L Lafreniere Lumber Ltd. P.O. Box 340, Chapleau, Ontario	Busby and Lipsett Townships	1971	Reissue
May 15/69	Kormak Lumber Co. Limited 6 Dufferin Street, Sudbury, Ontario	De Gaulle Township	1972	New
May 15/69	Multiply Plywoods Limited P.O. Box 910, Nipigon, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
May 22/69	Trilake Timber Company Ltd. P.O. Box 361, Kenora, Ontario	Bridges Township	1973	New
May 22/69	Wesont Lumber Company Ltd. P.O. Box 89, Clifford, Ontario	Ashby & Mayo Townships	1974	Reissue

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SSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type of Transaction
May 22/69	Grant Lumber Company Ltd. Sixth Street, Elk Lake, Ontario	Dunmore Township	1970	New
May 22/69	Weldwood of Canada Limited P.O. Box 395, Norwich Avenue Woodstock, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
May 22/69	Wilfred Paiement Earlton, Ontario	Burt Township	1970	New
May 29/69	Elmer Krieger Palmer Rapids, Ontario	Griffith Township	1972	Reissue
June 5/69	Ankney and Franklin Contracting Ltd. Savant Lake, Ontario	McCubbin, Conant and Boucher Townships	1970	New
June 5/69	Regional Logging Industries Limited P.O. Box 519, Dryden, Ontario	MacFie Township	1970	New
June 5/69	Feldman Timber (Matheson) Ltd. P.O. Box 440, Timmins, Ontario	Garrison, Harker & Elliott Townships etc.	1970	New
June 5/69	Multiply Plywoods Limited P.O. 910, Nipigon, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
June 5/69	Ernest Peters R.R. #2, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1972	New
June 5/69	T. E. Woollings Englehart, Ontario	Clifford Township	1970	New
June 12/69	Vic Pearson & Sons Limited Box 113, Fort Frances, Ontario	Farrington Township	1973	New
June 12/69	Maurice Lecours Box 1000, Hearst, Ontario	Bannerman Township	1971	Reissue
June 12/69	Devlin Timber Company Ltd. 59 Drewey Drive, Kenora, Ontario	Rice, Gundy & Malachi Townships etc.	1974	New
June 19/69	Flek Timber Company Ltd. Opasatika, Ontario	Fleck Township	1971	New
June 19/69	Buchanan Brothers (Ontario) Limited Red Rock, Ontario	Glen & McMaster Townships	1970	New
June 19/69	August E. Quade Quadeville, Ontario	Griffith & Lyndoch Townships	1972	Reissue
June 19/69	Rene Fabris P.O. Box 327, Elliott Lake, Ontario	Esten Township	1970	New
June 19/69	Cockburn Lumber Limited General Delivery, Capreol, Ontario	McLeod, Ellis & Selkirk Townships	1972	New
June 19/69	Dubreuil Brothers Limited Dubreuilville, Ontario	Townships 29, 53 and 54 etc.	1974	New
			CO	ntinued

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type Transac
June 26/69	Domtar Limited P.O. Box 7210, Montreal, Quebec	Faraday, Limerick & Tudor Townships etc.	1974	Reissu
July 3/69	George R. Stein Schutt, Ontario	Ashby Township	1974	Reissu
July 10/69	Pembroke Lumber Company Limited P.O. Box 201, Pembroke, Ontario	White, Edgar & Fitzgerald Townships	1970	Reissu
July 10/69	Charles Leray R.R. #1, Keewatin, Ontario	Gidley Township	1972	New
July 10/69	Buchanan Brothers (Ontario) Limited Red Rock, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
July 10/69	J. Lafreniere and Sons Ltd. Box 1/26, Sturgeon Falls, Ontario	Angus, Parkman & Burnaby Township	s 1972	Reissue
July 10/69	Howard-Bienvenu Inc. La Sagre, Quebec	Lamplugh & Harker Townships	1970	New
July 10/69	Gillies Bros. & Co. Ltd. P.O. Box 68 Portage Du Fort, Quebec	Fitzgerald Township	- 1971	Reissue
July 10/69	Jake E. Stewart Limited R.R. #1, Deep River, Ontario	Head, Rolph & Bronson Townships	1971	Reissue
July 10/69	Swanson Bros. Logging Contractor P.O. Box 1209, Cochrane, Ontario	Beniah Township	1970	New
July 10/69	J. D. Levesque Box 460, Hearst, Ontario	Shannon Township	1971	Reissue
July 10/69	Woollings Forest Products Limited Englehart, Ontario	Terry Township	1972	Reissue
luly 10/69	Pembroke Lumber Co. Limited P.O. Box 201, Pembroke, Ontario	White & Fitzgerald Townships	1971	Reissue
luly 17-69	Ranger Logging Limited 99 Pine Street Sault Ste Marie, Ontario	Twp. 175	1972	Reissue
uly 17/69	Boreal Timber Limited Box 627, Postal Station "P" Thunder Bay, Ontario	Goldie Township	1971	Reissue
July 17/69	G. A. Querel Box 54, Vermilion Bay, Ontario	Unsurveyed Territory Kenora District	1970	New
uly 17/69	Benoit D'Amours R.R. #1, Moonbeam, Ontario	Nansen Township	1970	New

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JED BY VIRTUE OF SECTION 3(1) OF C.T.A.

	Licensee	Location	Expiry March 31st	Type of Transaction
17/69	J. Leo Gauthier Limited 188 Tanguay Street Sudbury, Ontario	Cotton & Howey Townships	1973	New
17/69	J. Leo Gauthier Limited 188 Tanguay Street	Cotton & Howey Townships	1973	New
17/69	Rene Champoux Wabos, Ontario	Marne Township	1970	New
17/69	Chantier Co-Operative de Barker Val Rita, Ontario	Barker Township	1970	New
17/69	The Great Lakes Paper Company Limited Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay	1982	Reissue
17/69	Roy Bye 179 Woodward Ave., Sault Ste Marie	Hodgins Township	1971	Reissue
17/69	Malette Lumber Limited P.O. Box 91, Timmins, Ontario	Fortune Township	1975	New
17/69	Herb Shaw and Sons Limited R.R. #6, Pembroke, Ontario	Bronson, Stratton & Head Townships	1971	Reissue
17/69	Rosaire Bouchard R.R. #1, Moonbeam, Ontario	Hansen Township	1970	Reissue
17/69	Sawyer-Stoll Lumber Company of Canada Limited Kaladar, Ontario	Miller Township	1971	Reissue
24/69	Laurent Duplin Searchmont, Ontario	Sheilds Township	1970	New
24/69	Henry Johnson Timber Co. Limited 368 Queen Street East Sault Ste Marie, Ontario	Townships 22 and 23	1971	Reissue
24/69	Lionel Gauthier R.R. #2, Heyden, Ontario	Hodgins Township	1970	New
31/69	Northern Forest Products Limited Box 990, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
31/69	Milton K. Krieger R.R. #1, Rainy River, Ontario	Tweedsmuir & Phillips Townships	1974	New
31/69	Louis Brun Co. Ltd. Field, Ontario	McNish Township	1972	Reissue
ust 7/69	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Hartle & Burnaby Townships	1973	Reissue
			(continued

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type Transac
August 13/69	Isidore Carre River Valley, Ontario	Pardo Township	1972	Reissu
August 13/69	Veilleux Brothers Limited Shiningtree, Ontario	Stull Township	1971	New
August 13/69	Dryden Paper Company Limited Dryden, Ontario	Unsurveyed Territory Kenora District	. 1970	New
August 21/69	Midway Lumber Mills Limited Thessalon, Ontario	Township 1F	1975	New
August 21/69	Alfred Isabelle Box 119, Opasatika, Ontario	McCowan Township	1970	New
August 21/69	Ross Lake Lumber Limited 604 Oakwood Avenue North Bay, Ontario	Notman Township	1972	New
August 21/69	Ludger Otis 73 Royal York Blvd. Sault Ste Marie, Ontario	Hodgins Township	1970	New
August 21/69	G & B Logging Limited 5 First Avenue, Wawa, Ontario	Townships 30 & 31	1970	New
August 21/69	Regis Poulin 378 Frontenac Street Sault Ste Marie, Ontario	Township 27	1970	New
August 21/69	Henry Selin Forest Products Limited Hearst, Ontario	McFarlan Township	1974	New
September 4/69	Gagnon Lumber Limited Box 519, Kenora, Ontario	Unsurveyed Territory Kenora District	1972	New
September 11/69	Boreal Timber Limited Box 627, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
September 11/69	Weyerhaeuser of Canada Ltd. P.O. Box 179 Richmond Hill, Ontario	Township 28	1970	New
September 11/69	Herb Shaw & Sons Ltd. R.R. #6, Pembroke, Ontario	Niven & Dickson Townships	1971	Reissue
September 11/69	Howard Smith Paper Mills Limited P.O. Box 7210 Montreal 101, Quebec	Cameron, Papineau & Boyd Townships etc.	1972	New
September 11/69	Herb Shaw and Sons Ltd. R.R. #6, Pembroke, Ontario	Niven Township	1971	Reissu€

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UED BY VIRTUE OF SECTION 3(1) OF C.T.A.

	Licensee	Location	Expiry March 31st	Type of Transaction
ember 11/69	Weyerhaeuser of Canada Limited Box 179, Richmond Hill, Ontario	Township 28	1970	New
ember 18/69	Murray Bros. Lumber Co. Ltd. Barrys' Bay, Ontario	Clancy Township	1971	Reissue
ember 18/69	Grant and Wilson Lumber Limited Swastika, Ontario	Burt Township	1970	New
ember 18/69	La Societé Co-Operative De Mattice Mattice, Ontario	McCrea Township	1970	New
ember 25/69	William A. McMurray Gilmour, Ontario	Cashel Township	1974	New
ober 2/69	Weyerhaeuser of Canada Limited Box 179, Richmond Hill, Ontario	Osborne, Portas & Eddy Townships etc.	1990	New
ober 2/69	L. H. Jan L'Amable, Ontario	Anstruther Township	1976	New
ober 2/69	Murray Bros. Lumber Co. Ltd. Barrys' Bay, Ontario	Dickson & Anglin Townships	1970	New
ober 2/69	Feldman Timber Company Limited Timmins, Ontario	Enid Township	1970	New
ober 2/69	James Gibson & Sons Limited P.O. Box 734, North Bay, Ontario	Blyth Township	1974	New
ober 2/69	Boyes Brothers Vankoughnet, Ontario	Oakley Township	1973	New
ober 9/69	Louis Charland 712 Third Line West Sault Ste Marie, Ontario	Gaudette Township	1970	New
ober 23/69	Meadowside Lumber Limited 1230 Fraser Street North Bay, Ontario	Charlton & Lyman Townships	1970	New
rember 13/69	The Great Lakes Paper Company Limited P.O. 430, Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
ember 13/69	Regis Poulin 378 Frontenac Street Sault Ste Marie, Ontario	Township 27	1970	New
'ember 13/69	Isidore Roy 175 Front Street Sturgeon Falls, Ontario	Davis Township	1971	New
				ontinued

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type Transac
November 13/69	Rogerson Lumber Company Limited Port Loring, Ontario	Stalin Township	1972	New
November 13/69	The Great Lakes Paper Company Limited P.O. Box 430, Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
November 12/69	Lecours Lumber Company Calstock, Ontario	Auden Township	1970	New
November 27/69	L. Vincent Burns Box 222, Massey, Ontario	Tennyson Township	1971	Reissu
December 4/69	Wabigoon Lakes Corporation Dinorwick, Ontario	Satterly Township	1977	New
December 4/69	Maurice Lacoursiere Searchmont, Ontario	Gaudette and Hodgins Township	1970	New
December 11/69	Floyd E. M. Drager P.O. Box 168 Red Lake, Ontario	Unsurveyed Territory Kenora District	. 1972	New
Dec. 18/69	Patrick Robillard Box 539, Red Lake, Ontario	Unsurveyed Territory Kenora District	1974	New
anuary 22/70	T. G. Fleron Limited Thessalon, Ontario	Haughton Township	1972	New
anuary 29/70	The Morrison Bros. Ltd. Marten River, Ontario	Flett Township	1972	New
anuary 29/70	Spruce Falls Power and Paper Company Limited 2 Carlton Street, Toronto	Bradley, Harmon and Cockshutt Townships etc.	1982	Reissu
anuary 29/70	Wilfred Paiement Earlton, Ontario	Burt Township	1971	New
anuary 29/70	Peter Denys Point Aux Pin Sault Ste Marie, Ontario	Township 27	1971	Reissu
February 5/70	Firesteel Contractors Limited P.O. Box 1194, Postal Station "P" Thunder Bay, Ontario	Langworthy Township	1974	New
ebruary 5/70	Grant Lumber Co. Ltd. Sixth Street, Elk Lake, Ontario	Dunmore Township	1971	New
February 5/70	A. E. Jacobson Lumber Co. Ltd. 223 South Hill Street Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1973	New

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SUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

ite	Licensee	Location	Expiry March 31st	Type of Transaction
bruary 5/70	Laurent Duplin Searchmont, Ontario	Shields Township	1970	New
bruary 12/70	Lambert Wasmund Maple Leaf, Ontario	Wicklow & Herschel Townships	1975	Reissue
bruary 12/70	Shuniah Contracting Limited R.R. #13, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1970	New
bruary 19/70	K. Kutschke & Son Limited R.R. #1, Pembroke, Ontario	Rolph and Wylie Townships	1973	Reissue
bruary 19/70	Louis Charland 712 Third Line West Sault Ste Marie, Ontario	Gaudette Township	1971	Reissue
bruary 19/70	August E. Quade Quadeville, Ontario	Brudnell and Lyndoch Townships	1970	New
bruary 26/70	Malette Lumber Limited P.O. Box 91, Timmins, Ontario	Cote, Massey and Whitesides Townships	1971	New
bruary 26/70	Denis Dostie P.O. Box 1328 Blind River, Ontario	Montgomery Township	1971	Reissue
ebruary 26/70	Pearson Forest Products Limited P.O. Box 219 Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1972	Reissue
ebruary 26/70	Frank X. Landry Box 27, Atikokan, Ontario	Schwenger Township	1973	Reissue
ebruary 26/70	Kent Brothers Limited R.R. #1, Sundridge, Ontario	Butt Township	1971	Reissue
ebruary 26/70	Vernon Armstrong P.O. Box 429 Fort Frances, Ontario	Griesinger Township	1972	Reissue
ebruary 26/70	Seine River Tourist and Timber Limited P.O. Box 399 Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1973	Reissue
bruary 26/70	Boreal Timber Limited P.O. Box 627, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
bruary 26/70	Dawson Robinson Maynooth, Ontario	McClure Township	1975	New
arch 5/70	Malette Lumber Limited P.O. Box 91, Timmins, Ontario	Kenogaming Township	1973	Reissue
			con	tinued

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ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

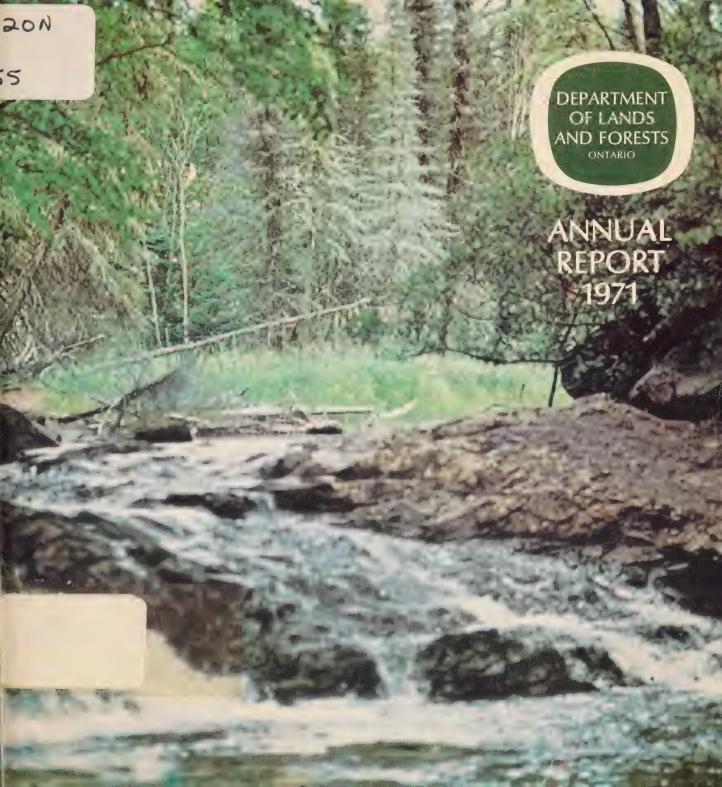
Date	Licensee	Location	Expiry March 31st	Type
March 5/70	Vic Pearson and Sons Limited Box 113, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1972	Reiss
March 5/70	Kormak Lumber Company Limited 6 Dufferin Street Sudbury, Ontario	Nimitz Township	1971	Reiss
March 5/70	Nym Lake Timber Company Box 760, Atikokan, Ontario	Unsurveyed Territory Rainy River District	1972	New
March 5/70	Hoey & McMillan Limited Box 2019, Dryden, Ontario	Bridges Township	1976	New
March 5/70	William Saskosky P.O. Box 575, Red Lake, Ontario	Unsurveyed Territory Kenora District	1971	New
March 5/70	Albert Kapush Contracting Limited R.R. #2, Postal Station "P" Thunder Bay, Ontario	Unsurveyed Territory Rainy River District	1971	New
March 5/70	M. J. Labelle Co. Ltd. Box 410, Cochrane, Ontario	Leitch Township	1973	Reiss
March 5/70	William Stewart Murray Flanders, Ontario	Unsurveyed Territory Rainy River District	1973	Reiss
March 12/70	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Dunmore Township	1971	New
March 12/70	T. E. Woollings Englehart, Ontario	Clifford Township	1971	New
March 12/70	J. H. Normick Ltee Box 2500, La Sarre, Quebec	Sargeant Township	1971	New
March 12/70	J. H. Normick Ltee Box 2500, La Sarre, Quebec	Marriott, Rand and Harker Townships etc.	1971	New
March 19/70	Rudolph McChesney Lumber Company Limited Box 150, Timmins, Ontario	Kenogaming Township	1975	Reiss
March 19/70	Maurice Lecoursiere Searchmont, Ontario	Hodgins and Gaudette Townships	1971	Reiss
March 19/70	Ernest Peters R.R. #2, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1973	New
March 19/70	Chapleau Lumber Company Limited Chapleau, Ontario	Buckland and Ramsden Townships	1972	Reiss
March 19/70	Leo Lapierre 418 Wilson Avenue Timmins, Ontario	Sewell Township	1973	Reiss

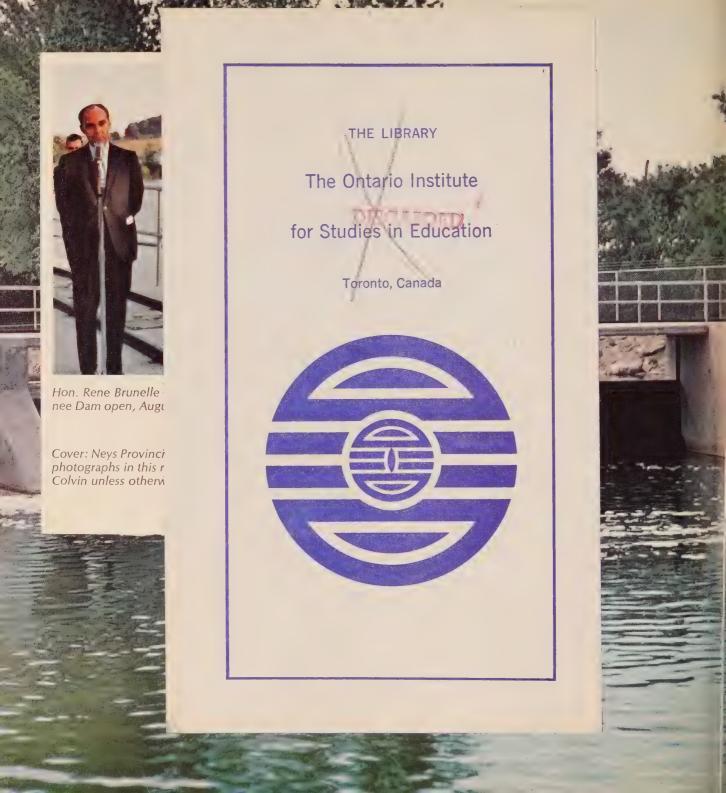
continued.

SUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

e	Licensee	Location	Expiry March 31st	Type of Transaction
rch 19/70	Vic Pearson & Sons Limited Box 113, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1972	Reissue
rch 19/70	Clarence Wasmund Maple Leaf, Ontario	Wicklow Township	1972	Reissue
arch 26/70	Liskeard Lumber Limited 159 Faren Street New Liskeard, Ontario	McGiffin Township	1971	Reissue
arch 26/70	Lynch and LeMay 190 Juniper Drive Postal District ''P'' Thunder Bay, Ontario	Fraleigh Township	1971	Reissue
arch 26/70	Multiply Plywoods Ltd. Box 910, Nipigon, Ontario	Conacher and Blackwell Township	1971	New
arch 26/70	Central Timber Products Red Lake, Ontario	Unsurveyed Territory Kenora District	1973	New







ANNUAL REPORT

OF THE
MINISTER OF
LANDS AND FORESTS
OF THE PROVINCE
OF ONTARIO
FOR THE FISCAL YEAR
ENDING MARCH 31, 1971.

TO HIS HONOUR, The Lieutenant-Governor of the Province of Ontario.

Cene Brunelle

MAY IT PLEASE YOUR HONOUR

The undersigned begs respectfully to present to your Honour, the Annual Report of the Department of Lands and Forests for the fiscal year beginning April 1st, 1970, and ending March 31, 1971.

RENE BRUNELLE Minister

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DEPARTMENT OF LANDS AND FORESTS



FOREWORD

The Annual Report of the Minister is a review of the activities of the Ontario Department of Lands and Forests during the latest fiscal year completed. For both the present term and preceding years, additional detail is reported in "Statistics, 1972", which is released concurrently.

The adoption by the Ontario Government in 1969 of the Planning, Programming, Budgeting System of management required a close examination of the goals and objectives for the Department. Previously, certain work had been done in this area so that what was required was actually a refinement. This work led to the goal and objectives statement which follows.

GOAL AND OBJECTIVES

—To provide from Crown lands and waters, and to encourage on private land and waters, a continuing combination of resource development, outdoor recreation and quality environment most consistent with the social and economic well-being of the people of Ontario.

Since the Annual Report takes the form of a collection of reports by the Department's numerous subdivisions, it is important to note that these represent the considerable variety of the Department's responsibilities and the many duties discharged with the same over-all aim. This common aim is summarized in the Department's goal statement.

Flowing from the goal statement are three objectives which represent the basis for the program structure and the proposed organization. Essentially, the land management objective is concerned with the land base and its care and up-keep. The other two objectives relate to the consumptive and non-consumptive uses of the renewable resources which exist on the land base.

LAND MANAGEMENT OBJECTIVE

—To provide co-ordinated land and water resource management within the framework of a government-wide quality environment goal through planned land-use allocation and control, environmental protection and inter-agency co-operation so that optimum social and economic benefits accrue to the people of Ontario both now and in the future.

In the present organization, the activities of Forest Protection Branch and Lands and Surveys Branch generally fit within the land management objective.

OUTDOOR RECREATION OBJECTIVE

—To provide opportunities for (a) a wide variety of outdoor recreational experiences accessible to, and for the continuing benefit of, all people of Ontario, and (b) an optimum continuing contribution to the economy of Ontario and its regions from the tourist industry.

The activities of Fish and Wildlife Branch and Parks Branch represent the bulk of the activities carried out within this objective.

RESOURCES DEVELOPMENT OBJECTIVE

—To provide an optimum continuing contribution to the economy of Ontario and its regions from the industries utilizing renewable natural resources.

The activities of Timber Branch represent the major interests of this objective.

The activities of the Personnel, Accounts, Law, Operations and Research Branches are of a service nature and are therefore not represented by a separate objective.

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MINISTER OF LANDS AND FORESTS Hon, RENE BRUNELLE

ORGANIZATION



EXECUTIVE ASSISTANT R. L. Kertson



DEPUTY MINISTER G. H. U. BAYLY

EFS OF HEAD OFFICE BRANCHES



COUNTS FISH AND WILDLIFE R. MacBean



FOREST PROTECTION

Dr. C. H. D. Clarke W. T. Foster



LANDS AND **SURVEYS**

R. G. Code



LAW G. H. Ferguson



G. A. Hamilton



P. Addison

OPERATIONS **PARKS**



PERSONNEL



RESEARCH J. M. Taylor Dr. W. R. Henson A. J. Herridge



TIMBER



ASSISTANT DEPUTY MINISTER

R. D. K. Acheson



NORTHWESTERN REGION REGIONAL DIRECTOR PORT ARTHUR L. Ringham



NORTHEASTERN REGION REGIONAL DIRECTOR **SUDBURY** J. W. Lockwood



SOUTHERN REGION REGIONAL DIRECTOR MAPLE J. W. Giles



Fish and Wildlife Branch is divided into two sections and their subordinate units with duties and responsibilities as follows.

WILDLIFE

- Game Management: Maintenance and increase of game abundance through improvement of habitat, regulations, inventory of game numbers, measure of participation by hunters, establishment of public hunting areas; and development of agreement with landowners to provide improved game habitat and hunting opportunities.
- Fur Management: Biologically sound management of furbearing animals; counselling of trappers to assist them in achieving the highest economic returns for their furs; regulations; stocking of animals in depleted areas; and licensing of fur farms.
- Field Services: Enforcement of the hunting and fishing regulations; development of training programs for conservation officers related to law enforcement; development of programs to secure the co-operation of the public in observing regulations; and conduct of hunter examinations.

FISHERIES

- Sport Fisheries and Hatcheries: Planning, co-ordinating and stimulating programs to maintain, develop and expand the Province's sport fisheries through habitat improvement, regulations, inventory of fish populations, measurement of angler activity and angler harvests, development of provincial fishing areas, providing information, production of hatchery stock and assessment of its effectiveness, distribution of fish, and stimulation of commercial hatchery and private fish pond development.
- Commercial Fisheries: Planning and co-ordinating programs based on sound biologic, social and economic bases for the optimum commercial utilization of the Province's fishery resources; issuing licences; collection of statistics (both biologic and economic) on commercial harvests of fish; regulation of harvest through seasons, quotas, gear restrictions and other means; and the development of programs to assist and stimulate industry in catching, processing, handling and marketing of fish.
- Fisheries Inventory: Inventory of the waters of the Province; organization and co-ordination of the field programs; and implementation of data processing systems to utilize inventory information for biologic, economic and other uses.
- Indian Resource Development: Administration and coordination of resource program of fisheries, wildlife, forestry, recreation, etc., under the Federal-Provincial Resource Development Agreement; and development of programs for Indian use of resources.

A pheasant, a moment after release, Gananoque Provincial Hunting Area. Photo by C. Van Gemerden.



DEER MANAGEMENT

Deer management in Ontario aims at providing outdoor recreation through hunting and viewing deer. This is not an easy task in Ontario where deer are on the northern edge of their range and severe winters frequently take a heavy toll. The influence of winter was particularly evident during the year 1970-1.

THE HUNT

The number of hunters declined from about 92,000 in 1969 to about 83,000 in 1970. This may have been due largely to economic conditions, but the relatively poor hunter success of the previous two years (due to unfavourable weather during the hunting seasons) probably discouraged many hunters. The weather in 1970 was much better with none of the heavy rain or snow which discouraged hunters in the preceding two years. It was mainly warm and overcast, and deer were still widely spread over their summer range. There was no snow to show deer tracks, but hunter success should have increased in response to more favourable hunting conditions. As it was, the influence of the previous winter intervened.

The winter of 1969-70 was one in which snow lay deep on the ground over long periods. Although there was no massive mortality, it seems certain that some losses occurred, probably enough to affect hunter success. The indications were in the exceptionally low percentages of fawns in the 1970 deer kill. It has been shown under experimental conditions that does with inferior winter diets lose many of their fawns during the spring. This appears to be what happened in 1970. The shortage of fawns was particularly noticeable in contrast with 1969 when the percentages of fawns were unusually high. The good crop of fawns that year was confirmed by the 1970 statistics in which large numbers of yearlings were recorded.

An exception to these general observations appeared in Parry Sound Forest District where fawns comprised nearly one-third of the deer examined during hunter checks in 1970.

White-tailed deer, bogged down in deep snow, Matawatchan Township, Renfrew County, February, 1971. Photo by W. F. Cheshire. The combined effects of fewer deer and fewer hunters produced an over-all hunter success of about 20 per cent which was close to the average for the previous ten years. Although hunter success fluctuates from year to year, it has for ten years remained within quite narrow limits. There are greater variations between districts. Thus, to compare the 1970 hunting season with the previous one, it is necessary to examine each forest district individually.

In Kemptville District, hunter success increased from 17% in 1969 to 19% in 1970. Success in Tweed District remained about 20% with somewhat poorer success in North Hastings County. Hunter success in Lindsay District remained just under the 20% level, but there was considerable variation within the district; in Haliburton County, very good hunting was reported, but success was considerably less in North Peterborough County.

In Lake Huron District, hunter success increased from 14% in 1969 to 17% in 1970. Parry Sound reported about 18%, similar to 1969. In Lake Simcoe District, some townships showed success as high as 25%, but the over-all success remained around 20%, the same as last year. Farther north, hunters success in Pembroke District increased from 12% in 1969 to 15% in 1970, while North Bay had the usual 8% success.

Reasonably good hunting was found on Sudbury mainland, compared with some recent years; the over-all hunter success was still only about 10%, but among organized groups it rose to 15%, and organized non-resident hunters reported 36%. On Manitoulin Island, hunter success was similar to the previous year — 22% in 1969 and 23% in 1970. In Sault Ste. Marie District, hunter success appeared about the same with a little better success in the Blind River area than in the rest of the district.

In contrast, hunting in northwestern Ontario continued to be excellent. Recent mild winters permitted the continued recovery of the herd following the severe winter of 1965. Kenora reported a hunter success of 42%, and Fort Frances was even higher at 44%. Farther east in Thunder Bay District, severe winters are more frequent, and the effect on the hunter success was evident as it continued to drop from 18% in 1969 to 16% in 1970.

A mailed survey of deer hunters has been initiated to provide more reliable and detailed information on hunter activities and success than the returns from checking stations and field checks quoted here. However, there are still problems in interpreting the data.

WINTER CONDITIONS AND RANGE MANAGEMENT

Shortly after the deer hunt, district crews began preparing for regular, winter, deer range management work in the eastern deer range. Everything appeared normal with the arrival of snow about the middle of November, but snowfalls continued to be frequent in January and, indeed, throughout the rest of the winter. The few minor thaws were not enough to reduce snow depths greatly. The frequent snowfalls, with little thawing, produced snow depths greater than any recorded since records were begun 18 years ago. Average snow depths across the eastern deer range were greater than 20 inches for 14 consecutive weeks, and greater than 30 inches for eight weeks. Deer were confined to small areas where food supplies became critical.

Emergency work was initiated about mid-February. Additional trees were cut in many of the areas where deer were concentrated to provide food from the tops. Emergency work contrasts with normal winter operations which open the canopy and encourage growth of new plants for the deer to eat in succeeding years. The wisdom of this policy became evident during the winter as many of the food patches resulting from previous work provided crucial sustenance to the deer.

A newly developed technique helped ensure that all nearby food could be utilized. On the basis of previous experimental work, the first large-scale trail-breaking operations were undertaken with bulldozers, skidders and power toboggans, ploughing or packing access routes from where the deer were concentrated to food patches established during previous winters.

Fortunately, the deer survived much better than could have been expected in view of the widespread starvation which occurred during 1958-9 and 1959-60 when there was less total accumulation of snow. Probably, several factors combined to favour the deer in 1970. First, the mild, late fall allowed them to enter the winter in good shape. Second, a hard crust developed about the middle of February, and this allowed deer to walk on top of the snow in many areas so they could range farther and reach higher for food. Third, a reasonably good balance existed between numbers of deer and amounts of available food, as a result of lower deer densities on the one hand, and more available food produced by deer range management work on the other.

Our redoubled efforts during the period of deep snow appeared to have a noticeably beneficial effect on the deer. Preliminary figures suggest that only about 12 to 14% of the deer succumbed during this winter in spite of the deepest snow on record. This mortality is considered moderate, and it is certainly much less than the losses during the

previous extreme winters of 1958-9 and 1959-60.

The mortality varied from district to district. Some of the heaviest mortality occurred in Lindsay District and in the districts along the northern edge of the deer range — North Bay, Sudbury, and Sault Ste. Marie. Except in Thunder Bay District, which experienced a relatively severe winter, the deer in northwestern Ontario escaped again. The accumulation of snow was not severe, and little mortality was reported.

DEER RANGE IMPROVEMENT, 1970-1

Forest District	Net Area Treated	Winter Range Affected
Total District	(acres)	(acres)
Sault Ste. Marie	155	1,900
Sudbury	375	60,000
Parry Sound	780	4,900
Pembroke	1,197	25,800
Lindsay	683	32,900
Tweed	1,307	10,000
Lake Simcoe	16	5,000
TOTAL	4,513	140,500

MOOSE MANAGEMENT

The recreational opportunities afforded by the presence of moose are numerous and varied. Many people observe moose during the summer. Many more partake of a thrilling hunt during the fall. The goal of moose management in Ontario is to continue to provide opportunities for recreation and economic benefit.

For the third successive year, the annual mailed survey of hunters was conducted from a central location with the aid of an electronic computer. Progress was made in streamlining the system, but difficulties still occurred, causing delays in producing the final figures. The figures given below may still be adjusted slightly to account for such influences as hunter bias in reporting.

THE HUNT

The total moose harvest for 1970, provisionally estimated a 13,664, was the third highest on record. Only in 1965 and 1966 were more moose harvested. The improvement ir hunting over the previous three years was due entirely to the better hunting weather during the season. Water levels were low, and the weather was pleasant. Thus, there were plenty of opportunities for calling moose and for seeing them along the shores of lakes and streams. By contrast, ir 1969 the weather was rainy and warm, and water levels were so high that moose seldom came into the open along the shorelines.

There were the usual variations in hunter success across northern Ontario in response to local conditions. The best hunting was in the northwest. Kenora District experienced its most successful hunt in recent years with a very high hunter success of 41.9%, compared with 33.1% in 1969. An early leaf fall, and early snow suitable for tracking, produced an extraordinary 48% success at the Red Lake Road Checking Station, compared with 37% in 1969. Hunting was equally good in Sioux Lookout District where the hunter success rose to 43.3% from 29.8% in 1969. The same could not be said of Fort Frances District which reported a decreased success of 35.5%, compared with 39.6% in 1969.

Farther east, the increase in hunter success was less spectacular. In the Districts of Thunder Bay (32.0%), Geraldton (27.0%), Kapuskasing (23.1%) and White River (21.2%), success was up by a few percentage points. These districts recorded more rainfall than in the west but not so much as they had during 1969. The total kill remained much the same, but it was taken by fewer hunters, producing a higher percent success. In Chapleau (16.7%), Cochrane (15.5%) and Swastika (14.4%) hunter success was similar to that of 1969.

Farther south, results of the hunt were not as favourable. Sault Ste. Marie enjoyed good hunting conditions only in the early part of the season. The warm weather persisted, so there was little snow for tracking, and the over-all success rate was down to 17.7% from 21.4% in 1969. Sudbury also had a slightly lower success of 13.1%, compared with 14.3% in 1969. North Bay showed a slight improvement to 18.5% from 14.0% in 1969.

The southern districts of Parry Sound, Pembroke, Lindsay and Tweed (after a closed season in 1969) reported fairly good hunting with reported success around 18 to 25%, but this was not as good as in 1968. Hunter success figures in this area are affected by the large numbers of deer hunters who have also become moose hunters. Therefore, the best comparisons are among numbers of moose shot. In Parry Sound District, 326 moose were reported in 1970, compared with 442 in 1968. In Pembroke and Lindsay, they reported shooting 102 and 78, respectively, in 1970, compared with 142 and 140 in 1968. An increased kill of 37 was reported in Tweed, compared with 21 in 1968.

The 1970 moose hunt showed more use of power toboggans during the later part of the season. This was partly due to their growing popularity in all outdoor winter sports and partly to the relatively early snow which the northern districts received. Yet, in Swastika District where power toboggans are perhaps the most popular, only 13% of the hunters reported using them. Although some people think the use of power toboggans threatens the moose herd, this is obvi-

ously not the case. Two-thirds of the moose are still shot during the first two weeks of the season. Thus, the moose shot during the late season by hunters using power toboggans could not have a great effect on the herd.

THE RANGE

The mailed survey of hunters has produced figures useful for managing our moose herds. A more difficult problem concerns the forest land on which moose depend for food and shelter. Surveys were conducted in five districts in the summer of 1970 to assess the effects of factors influencing the moose range.

Preliminary figures from Swastika District indicate that the practice of scarifying for timber regeneration is not having the detrimental effect on moose food production which had been feared. The disturbance caused by scarifying resulted in increased regeneration of many species, and this produced good moose food. However, the large size of the scarified area raised questions about whether moose need standing timber for escape cover and winter shelter. Attempts to determine the optimum size of clear-cuts in Geraldton and Port Arthur Districts were not successful. Further surveys are planned to answer this question.

The effect of aerial spraying with herbicides was also investigated. In White River District, preliminary results showed that alders and birch were almost entirely killed, but most other species survived. It appeared that a single aerial spraying in an area with diverse species would not have an adverse effect on availability of moose food.

Black bear, Algonquin Provincial Park. Photo by T. Jenkins.



Another survey was directed towards determining the length of time that regeneration continued to supply available food after the previous stand was cut. In some of the areas investigated in Kapuskasing District, browse was still plentiful after 17 years.

Good moose management practices must be based on accurate information. In 1970, further advances were made in recording the success of the annual moose hunt, and progress was made in the relatively new study of the forest as it affects moose. We are confident that any local problems of overharvesting can be quickly solved. In the long-term, it is the range on which the moose depend which will determine the future of moose in Ontario. The Section will strive to investigate all significant problems to ensure that moose will continue to provide the many benefits of outdoor recreation.

BEAR MANAGEMENT

In recent years, the black bear has gained popularity with hunters and recreationists, and therefore proper management is becoming more important. The goal of black bear management is to provide opportunities for recreation and economic benefit to the people of Ontario.

The continued success of our management program is indicated by the increasing sale of spring bear hunting licences. Sales of licences to residents have increased from 1,359 in 1969 to 1,517 in 1970, an increase of 12%. Sales of non-resident licences have increased from 9,400 in 1969 to 10,995 in 1970, an increase of 17%. Since most non-resident bear hunters spend \$80 to 90 on their hunt, the exchange of money generated by spring bear hunting in Ontario is fast approaching the million dollar mark.

Many hunters kill bear incidentally while hunting deer or moose in the fall. The export of bear from northwestern Ontario has increased from 248 in 1969 to 409 in 1970. Bear are increasingly important as a supplement to deer and moose hunting.

The nuisance-bear problem continued to decrease in importance during 1970 as few problem bears were reported. The problems raised by these bear may be related to the abundance of wild berries. Bear may range much farther when berries are scarce and thus come into more frequent contact with humans. Bear which find food near human habitations frequently return in search of more.

The traditional way of handling the problem is to shoot the bear. This is still necessary on some occasions, but in many instances we have been able to remove bear by trapping, drugging, transporting and releasing them. Very few bear return to the scene of the trouble. During the past year, nine districts used this humane method of removing unwanted bear.

UPLAND GAME MANAGEMENT

Upland game management objectives include regulations to permit maximum use of resident small game species, several of which are usually under-harvested; encouragement of practices which increase the production of small game; and accurate predictions of the annual availability of small game.

Upland game hunting continued to be a popular recreation in Ontario. During the 1969-70 season, 361,997 resident small game and summer hunting licences and 7,500 non-resident small game licences were sold.

RUFFED GROUSE

The past year showed a marked improvement in populations of ruffed grouse across most of the Province. There was little question that the nine-year cycle was on an upswing; of districts reporting, only two indicated fewer grouse based on summer observations. Better availability of grouse was reflected in information collected during the hunting season. Hunters on foot took 31 grouse per hundred hours in 1970, compared with 25.8 in the previous year. Hunters on bush roads took 5.1 grouse per hundred miles, a marked increase from the average of 2.1 recorded the year previously. Better hunter success was recorded in nearly every district. A further increase in availability of birds and hunter success was predicted for 1971.

SHARPTAILED GROUSE

Prairie sharptailed grouse were in good supply in north-western Ontario. Fort Frances District personnel live-trapped and transferred 50 prairie sharptails which were released in Grenville County. This year, a taped recording of courtship calls heard on a dancing ground were played at dawn at the release site. This was thought responsible for holding the released birds in a restricted area — which is essential if they are to set up their own dancing ground prior to nesting. This was the second consecutive year in which prairie sharptails were released in Grenville County; the initial release in 1969 dispersed rather widely since there were no taped dancing ground calls to hold them on the release site.

There is evidence to suggest that the first introduction of prairie sharptailed grouse in Lindsay District in 1963 is becoming more firmly established.

RING-NECKED PHEASANTS

Ring-necks were in reasonable supply in extreme, southwestern Ontario and in the Regional Municipality of Niagara. Pheasants were not quite as numerous in the area north of western Lake Ontario, and severe winter weather during 1970 is thought to be responsible. Pheasants in this latter area were hit hard again by weather during the winter of 1970-1, and a lower population was predicted for the 1971 season. In the Niagara area and in Essex, Kent and Lambton, the snowfall was not as severe and there was a reasonable carryover of pheasants.

Sportmen's clubs and 'regulated' townships continue to stock birds provided by the Department. The Department produced 29,800 chicks, 17,150 poults, and 7,050 fall adults. The latter were used on public hunting areas across southern Ontario. In addition, about 2,600 spent breeders were released in late spring across the southern counties.

Under the regulated township system, pheasants are provided to municipalities which frequently enlist the co-operation of sportmen's clubs to rear and release the birds under Department supervision. Municipalities, where birds were reared to adults for stocking just prior to the open season, had the best hunter success. Release of younger pheasant stock is much less successful in putting birds in the hunter's bag, and the total cost per bird bagged is much higher.

HUNGARIAN PARTRIDGE

The best Hungarian partridge hunting in Ontario continues to be provided by the eastern Counties, but huns were at the lowest levels in several years in the fall of 1970. The decline was evident in the average number of birds bagged per hunter day; it fell from 2.9 in 1968 to 1.4 in 1969 to 1.1 in 1970. Causes of periodic declines in Hungarian partridge populations are not known. It is quite possible, however, that this bird undergoes cyclic fluctuations of scarcity and abundance much as the ruffed grouse or varying hare; only continued observations will confirm or disprove this.

Weather conditions during 1970-1 in the Kemptville area were severe with snowfall at record levels. Kemptville District staff live-trapped partridge from unhunted areas, and a release of 24 birds was made in Sombra Township, Lambton County, in the same area where 46 were released the year previously. It is hoped to establish huntable populations of huns in every suitable area of southern Ontario.

RABBITS AND HARES

Ontario's "rabbits", including the European hare or jackrabbit, the cottontail rabbit, and the snowshoe or varying hare, produce excellent recreation, particularly in southern agricultural areas of the Province.

The varying hare continued to increase and was obviously on the upswing of its usual nine-year cycle. This species is sought by hunters, particularly in eastern Ontario. Hunting for cottontails, European hare and varying hare was more difficult in 1969-70 because deep snow came early and continued to accumulate during January and February. Lake Simcoe District checked 616 hunters who had taken .33 "rabbits" per hunting trip. This was a slight decline from the 0.40 figure obtained in 1969.

WOODCOCK

The popularity of this migratory game bird is increasing each year. Breeding ground surveys of singing males were made for the second consecutive year on over 50 randomly selected routes across southern Ontario. An average of 5.15 woodcock per comparable route was heard, and this average was the second highest of 24 states and provinces from Wisconsin to the Atlantic coast, exceeded, only slightly, by New Brunswick.

Federal surveys of migratory bird hunters estimated that 97,906 woodcock were taken in Ontario during the 1970-1 season, compared to 76,232 in 1969 and 55,952 in 1968. The average bag per successful hunter was 5.2, down slightly from the 6.1 average the year previously.

WATERFOWL MANAGEMENT

Waterfowl management objectives in Ontario include the maintenance of waterfowl populations at or near levels which occurred in the 1956-62 period, a period of both high and low population levels, and the provision of sustained quality recreation for hunters and non-hunters alike.

Preliminary figures from the Federal Government suggest a small increase in the number of resident migratory game bird hunting permits sold, and a slight decline in the number of non-resident non-migratory bird permits sold in the Province.

Waterfowl hunters enjoyed a successful season. Although unusually high numbers of local waterfowl were observed in early autumn, mild and sunny weather conditions throughout much of the season influenced success and provided good, rather than excellent, hunting. The exceptionally fine weather contributed to a lower bag of snow geese on James Bay; although geese were plentiful, a greater degree of effort was required to bring a bird to bag.

Pre-season waterfowl banding continued to be an important management activity in following trends in populations where, unlike western Canada, aerial and ground surveys cannot provide good information on such important forest nesting species as the black duck and the wood duck. Over 16,000 ducks and geese were banded by the Department in association with private co-operators at over

30 banding stations across the Province in 1970. This was an increase of more than 2,000 over the previous year.

GIANT CANADA GOOSE PROGRAM

For the third consecutive year, giant Canada geese were propagated and held at several game management areas in southern Ontario. The Counties of Wellington and Waterloo, the three southern townships of Grey County, East Luther of Dufferin County, and South Dumfries of Brant County remain closed to goose hunting to protect goose breeding stock.

Forty-six pairs of Giant Canada geese were released in 1970. Larger releases are planned for future years. The program to establish the Giant Canada goose, a southern breeding race, was begun in 1968 in association with the Ontario Waterfowl Research Foundation at Guelph.

Single pairs were released initially on small water areas on private lands, but there was trouble associated with keeping birds on the area, and the release method was changed in favour of larger numbers of geese on larger bodies of water.

WILDLIFE EXTENSION PROGRAM

The Wildlife Extension Program has been designed to accomplish three things. Primarily, it seeks to provide access to private lands for public recreation based on wildlife resources; it encourages private landowners to implement wildlife management practices on their properties; and it seeks to strengthen public appreciation of wildlife resources through interpretive programs which point out the value of wildlife to modern man.

The program is tailored to southern Ontarion where the need is most acute. Because southern Ontario is for the most part composed of privately owned properties, access problems to rural land have hindered wildlife oriented, public, recreational opportunities.

During the 1970-1 hunting season, four Wildlife Extension Agreement Areas were in operation for hunting and viewing. Law enforcement and wildlife management assistance is offered to landowners as an incentive to allow public access to their properties.

Ancaster Township Wildlife Extension Area, the first Agreement area in Ontario, continued to provide hunting opportunity in the crowded Golden Horseshoe area of southern Ontario. Under agreement with the Minister, 61 landowners allowed public hunting on their properties. A deputy-conservation officer patrolled the Township during peak hunting periods of the small-game season. Restricted zones were

posted by sportsmen around farm headquarters to restrict hunting access in areas where landowner-sportsman conflicts often arise. In addition, sportsmen assisted in the planting of wildlife shrubs offered free of charge through the Program to co-operating landowners. A Zenith telephone line was used in Ancaster to allow easy communication with the Hespeler office when problems arose from the public use of private lands. Landowners continue to receive this program enthusiastically.

Aylmer Ponds Wildlife Extension Agreement Area. This 106-acre parcel is owned jointly by the Town of Aylmer in Elgin County and the Ontario Water Resources Commission. Hunting access was controlled for the first time during the 1970 hunting season. By regulating hunter numbers, the number of waterfowl harvested from the ponds has been increased substantially, and the quality of the recreational experience has been correspondingly upgraded. Plans are under way to provide a permanent parking lot, waterfowl hunting blinds, and a law enforcement observation tower on the property.

Waterford Lakes Wildlife Extension Agreement Area. This 750-acre area has 11 ponds and provides a substantial amount of hunting and viewing opportunity for waterfowl. It is owned in part by the Long Point Region Conservation Authority, the Town of Waterford, the Township of Townsend, and several private landowners. Controlled hunting was provided on this area for the first time during the 1970 season. Waterfowl hunting from blinds and shooting positions was offered five days a week. Additionally, a flock of Giant Canada geese was introduced to the area. A large parking lot was built, and a waterfowl observation blind for public viewing was constructed within the sanctuary area. Future plans call for a Wildlife Management Demonstration area, and the construction and emplacement of several waterfowl nesting boxes and platforms.

Valens Wildlife Extension Agreement Area. This 450-acre property is owned by the Hamilton Region Conservation Authority. It provides waterfowl hunting and viewing opportunities on an area that is used intenstively during other periods of the year by outdoor recreationists. Seven blinds have been constructed and placed on the Valens Reservoir for hunter use. Access to the blinds is controlled by the Conservation Authority. A baited area is located on the south end of the reservoir. Waterfowl hunting is permitted during the mornings of Monday, Wednesday and Saturday during the hunting season. In 1970, the area supplied recreation for 249 hunters who hunted a total of 1,298 hours, averaging 5.21 hours per hunter. A total of 378 ducks were harvested, an average of 1.52 ducks per hunter.

PROVINCIAL HUNTING AREAS

In the Provincial Hunting Area program, our primary goal is to provide a place to hunt in areas where hunting opportunities have become most restricted and the need for public hunting land is most urgent. Other goals are as follows:

to manage these lands to produce a variety of wildlife species at levels as nearly as possible in harmony with man's various interests;

to produce a high quality hunting and outdoor recreational experience;

to create a public awareness of the value of wildlife in modern society;

to encourage alternate uses such as wildlife photography, dog field trials, and nature study.

PHEASANT HUNTING AREAS

Pheasants were released in good cover (in numbers according to demand) on four hunting units in Provincial Parks as well as the Gananoque Provincial Hunting Area in 1970, and 4,901 man-days of pheasant hunting were enjoyed in areas where normally this recreational past time would not occur because four of the five units are outside the native pheasant range. A total of 6,100 birds were released, mainly in these five areas. Limited numbers were stocked in good cover at Tiny Marsh in Simcoe County, at the north end of Scugog Island in Ontario County, and on the Brighton Provincial Hunting area in Northumberland County.

PROVINCIAL WATERFOWL HUNTING AREAS

Five waterfowl management units within Provincial Parks were in operation again in 1970 to provide the public with reasonable-quality hunting opportunities for ducks and geese.

PROVINCIAL WATERFOWL HUNTING AREAS, 1970

Name of area	Acres	Daily Licences Sold (Zone A)	Seasonal Licences Sold (Zone B)
Long Point	1750	1717	551
Rondeau	9200	960	352
Darlington	380	255	492
Presqu'ile	2170	_	573
Holiday Beach	262	_	1066
Tiny Marsh (opening day only)	2300	700**	_

Name of area	No. of Seasonal Hunters Checked	No. of Waterfowl Harvested	Average Bag Per Hunter
Long Point	. 551	Zone A 2025	1.2
		Zone B 475	.9
Rondeau	. 148	Zone A 1464	1.5
		Zone B 220	1.5
Darlington		498	1.2
Presqu'ile			
Holiday Beach		1293	0.2*
Tiny Marsh			1.3

^{*}Bird/hunter low because sportsmen are concentrating on harvesting Canada geese.

PROVINCIAL PHEASANT HUNTING AREAS, 1970

**		Darlington*	Sibbald* Point	Earl* Rowe	Point* Farms	Gananoque
	Hunting Area (acres)	380	450	425	600	1041
	Hunters		952	793	476	1743
1	Pheasants Released	1500	1439	1199	356	1600
	Pheasants Released/Hunter	1.6	1.5	1.5	0.7	0.9
	Pheasants Harvested	1273	1294	1108	293	1303
	Pheasants Harvested/Hunter	1.4	1.3	1.4	0.6	0.7

^{(*}areas within Provincial Parks)

^{**}No daily or seasonal licences required, Estimate only.

LANDS ACQUIRED FOR WILDLIFE PURPOSES, 1962-71

1 OKI 0323, 1302 /	•	Acres	Acres
Area	County	1962-71	1970-1
1 1 1 1	*D	1.050	81
Luther Marsh	*Dufferin	1,050	_
Isaac Lake	*Bruce	1,139	844
Angle Ditch Marsh	*Bruce	200	_
Johnston Harbour	Bruce	4,404	_
Dept. Highways			
transfer	various	1,062	
Hullett Marsh	*Huron	2,305	2,305
Holland Marsh	*Simcoe	1,298	
Tiny Marsh	*Simcoe	2,246	
Nonquon River	*Ontario	2,449	260
Wye Marsh	*Simcoe	2,417	
Dalton	Victoria	100	
Brighton	Northumberland	954	275
Murray Marsh	*Northumberland	1,593	
Gananoque	Leeds	1,046	
Winchester	*Dundas	3,600	
Charlottenburg	Stormont	258	
Millbrook	Durham	188	
Long Point	*Norfolk	90	_
Dalhousie Tract	Lanark	935	
Lavant Township	Lanark	5,300	100
Watt Township	*Muskoka	266	121
MacCauley Township	Muskoka	1,220	
Spence Township	Parry Sound	800	
openee rownsing	*Lennox &		
Camden Lake	Addington	299	299
Mountain View	Prince Edward	154	154
TOTAL		35,378	4,439

^{*}Wetland Projects

WILDLIFE MANAGEMENT UNITS UNDER DEVELOPMENT

Of the many land acquisition projects underway in Ontario for various purposes, 15 parcels of land, totalling 27,843 acres, are being actively developed to meet wildlife needs of adequate food and cover.

Aylmer Provincial Hunting Area. 555 acres, Malahide Township, Elgin County. Purpose: to demonstrate that the growing of farm crops and a wildlife crop are compatible and that with suitable management this kind of multiple-use is possible. Development: Until 1969, emphasis was placed on habitat management for upland game such as cottontail rabbits and pheasants; in 1970, plans were prepared to produce and attract waterfowl; in the winter of 1970, a chain

link fence was built within one-quarter mile of a proposed baited area for Canada geese; within the enclosure, a 50acre lake will be constructed, and Maxima Canada geese from Holiday Beach Provincial Park will be released to establish a breeding flock.

Fingal Provincial Hunting Area, 780 acres Southwold Township, Elgin County. Purpose: To demonstrate that the growing of farm crops and a wildlife crop are compatible and that with suitable management this kind of multiple-use is possible. Development, 1970: One corn crib and two granaries were constructed for storage of cob corn and grain from sharecropping agreements; fencing of the baited area around the six-acre impoundment was completed.

Puslinch Tract, 500 acres, Puslinch Township, Waterloo County. Purpose: A small game and waterfowl management demonstration area with the specific purpose of establishing habitats suitable for cottontail rabbits and ruffed grouse. Development 1970: 2,000 wildlife shrubs, 10,000 red pine, 2,000 Norway spruce, and 1,000 Carolina poplar were planted; more brush piles for cottontail rabbits were constructed; 40 nests for squirrels were erected in the hardwood bush; and 25 acres of corn food plots were planted.

Luther Marsh, about 10,000 acres, Luther Township, Dufferin and Wellington Counties. Most of the 1,050 acres in Provincial ownership are located within the Crown game preserve at the north end of the marsh. No hunting is allowed in this area. The upland fields are being farmed to provide food crops for waterfowl. A committee of Lands and Forests and Grand River Conservation Authority personnel drew up a co-operative management for this large area. Development, 1970: One one-acre pothole with three islands; 3,000 feet of shoreline clearing in test area on west bay; one pheasant pen; two ponds in the goose enclosure; 8,000 wildlife shrubs planted; five acres of goose pasture seeded; waterfowl lure crops planted; one parking lot constructed; one viewing platform built; and one bubbler system installed in the head pond to have open water during the winter for a captive Canada goose flock.

Hullett Marsh Provincial Hunting Area, 2,305 acres, Hullett Township, Dufferin County. Purpose: To attract migrating waterfowl for hunting and viewing purposes; the impoundment and upland fields will provide nesting, brooding and feeding areas for waterfowl as well as some upland game hunting in the woodlots and along the fence rows. Development, 1970: Two parking lots were constructed; some wildlife shrubs were planted; and a contour survey was completed. (No wildlife habitat development has taken place because land consolidation for the project area is still underway.)

Isaac Lake Provincial Hunting Area, 1,139 acres, Albermarle Township, Bruce County. Purpose: To provide public hunting for waterfowl and upland game as well as opportunities to view wildlife in its natural environment. Development, 1970: Fencing; goose enclosure with three ponds; one parking lot; and one boat launching ramp.

Willow Creek Provincial Hunting Area, 4,404 acres, St. Edmunds Township, Bruce County. Purpose: To provide hunting for small game and deer and public fishing. Development, 1970: Three parking lots were gravelled.

Tiny Marsh Provincial Hunting Area, 2,246 acres, Tiny Township, Simcoe County. Purpose: To provide public hunting for waterfowl in the marsh and for small game on the uplands as well as opportunities to view and photograph wildlife. Development, 1970: 6,840 wildlife shrubs were planted; lure crops for waterfowl were seeded; and a dike bisecting the marsh was constructed to permit drawdown of water levels in each of the two compartments.

Wye Marsh Provincial Hunting Area, 2,417 acres, Tay Township, Simcoe County. Purpose: Similar to that described for Tiny Marsh. Development, 1970: A 15-acre field was ploughed in preparation for goose pasture; a gravel access road was graded and extended to the edge of the marsh; a 1,500-foot access ditch was constructed; 24 duck hunting blinds were built; and 49 floating nesting islands for waterfowl were constructed.

Holland Marsh Provincial Hunting Area, 1,298 acres, West Gwillimbury Township, Simcoe County. Purpose: To provide public hunting for waterfowl and upland game as well as opportunities to view wildlife in its natural environment. Development, 1970: To provide more open water in the "sea" of cattail on the west side of the Holland River, a number of small potholes were created with the use of ammonium nitrate-fuel oil mixture.

Nonquon River Provincial Hunting Area, 2,449 acres, Reach Township, Ontario County. Purpose: As Holland Marsh, above. Development, 1970: One maintenance building; planting of wildlife shrubs; and ponds for waterfowl.

Brighton Provincial Hunting Area, 954 acres, Brighton Township, Northumberland County. Purpose: To provide public hunting for waterfowl and upland game as well as opportunities for viewing wildlife in its natural environment. Development, 1970: Completion of access road; one parking lot; fencing; food plots for wildlife; and planting of wildlife shrubs.

Camden Lake Wildlife Management Area, about 3100 acres, Camden Township, Lennox and Addington County. Purpose:

As Brighton area, above. Development, 1970: Fencing, goose pond, parking lots, access road, and establishment of waterfowl feeding sanctuaries.

Winchester Provincial Hunting Area, 3600 acres, Mountain Township, Dundas County. Purpose: As Brighton area, above. Development, 1970: Ponds for waterfowl, ditch construction, parking lot and fencing.

Gananoque Provincial Hunting Area, 1,046 acres, front of Leeds and Lansdowne Township, Leeds County. Purpose: As Brighton area, above. Development, 1970: Ponds for waterfowl, food plots for wildlife, and wildlife shrub plantings.

PREDATOR MANAGEMENT AND CONTROL

The Department's policy relative to predation on livestock by wildlife species, such as wolves, coyotes and bear, is to provide assistance to those concerned through training and the loan of the equipment necessary to remove the specific problem animals.

Mallard parents urge ducklings towards water. Photo by T. Jenkins.



Where predation on other wildlife species, such as deer, is considered to be having a detrimental effect on a specific population, the Department implements the necessary control programs to reduce the predator population to levels considered compatible with the existing prey populations.

Department staff conducted 62 investigations of instances of predation on domestic stock and wildlife prey species during 1970. These resulted in the implementation of 42 control programs. Thirty-one timber wolves, 29 coyotes and 11 dogs were removed from problem areas as a result.

Eleven predator control workshops were held in various locations throughout the Province during the year. Twenty-five Department employees received on-the-job training, and 222 farmers and trappers participated in the extension training programs.

A total of 1,433 timber wolves, 1,919 coyotes and 103 coyote-dog hybrids were killed for bounty in Ontario from January 1 to December 31, 1970. This is a slight decrease in numbers as compared to those killed during 1969.

The Province paid a total of \$67,984 for bounty on wolves, coyotes and hybrids during the past fiscal year as compared to \$69,996 in the preceding year.

FIELD SERVICES

The unit concerns itself chiefly with fish and game law enforcement, providing a liaison between the Wildlife and Fisheries Sections of the Fish and Wildlife Branch at head office and the Field and Law Branch. The publication of Hunting Summaries of the seasons and regulations, for public distribution, is also a responsibility of the Unit. Administration of The Game and Fish Act and the regulations, the Ontario Fishery Regulations, The Migratory Birds Convention Act and regulations, and The Wolf and Bear Bounty Act, as they apply to law enforcement in the field, is guided by Field Services.

The training of conservation offices and the procedure under which hunters are examined are included in the Unit's responsibilities.

The Central Licence Bureau is a part of the Unit, servicing game and fish managers in providing a closer contact with the users of fish and wildlife resources in programming and carrying out surveys.

LAW ENFORCEMENT

It is the aim of law enforcement to encourage, and to get, compliance with the fish and game laws for public benefit.

The objective of the law enforcement programs is to prevent violations. Where education and warnings fail to achieve compliance, charges may be laid.

Conservation officers have the power to enforce a number of Acts, and regulations provided under those Acts, in addition to those dealing strictly with wildlife. Officers often find themselves involved with The Public Lands Act, The Forest Fires Protection Act, The Timber Act, The Fish Inspection Act, The Provincial Parks Act, The Wild Rice Harvesting Act and others dealing with the environment. This large area of responsibility requires detailed knowledge of the law respecting these resources and an intimate understanding of their management if the laws are to be properly applied.

LAW ENFORCEMENT TRAINING

During the year, law enforcement training was continued for Department personnel directly and indirectly involved in law enforcement activities. Employees received instruction through three two-week courses held at Nym Lake Chief Ranger Division, Staff House, Fort Frances Forest District, and at the Ontario Forest Technical School, Dorset. Participating personnel were made up of biologists, conservation officers and forestry technicians.

A special course for supervisory field staff was given at the Ontario Forest Technical School. Twenty-four employees received instruction on power and procedure of arrest, methods, the Canada Evidence Act, the Criminal Code of Canada, and small arms training from instructors from the Ontario Police College. Lectures on co-ordination of law enforcement with game management, instruction on Migratory Bird Regulations, seizures, offence and seizure reports, and return of prosecutions were given by Field Services.

Law Enforcement training began in 1964. Since that date, 493 Department personnel have received law enforcement training through 44 two-week courses conducted by Department instructors.

In addition, 144 Department staff of supervisory category have received extended law enforcement training through six courses conducted by the Ontario Police College, assisted by Department instructors.

LAW ENFORCEMENT COURSES, 1970-1

Course	Date	Location	Number of Students		Class Average
42	Nov. 16 to Nov. 27, 1970	Nym Lake	12	889	74

43	Jan. 11 to Jan. 22, 1971		14	1138	81
44	Jan. 25 to Feb. 5, 1971	O.F.T. School	11	839	76
LF 6	Aug. 24 to Sept. 11, 1970		24	1983	83

^{*}Ontario Police College and Department Instructors

LAW ENFORCEMENT COURSES, 1964-71

Number of Department Staff Attending Courses						
Year	Department	O.P.C.				
1964-65	114	22				
1965-66	98	22				
1966-67	103	17				
1967-68	58	26				
1968-69	45	33				
1969-70	38	<u>*</u>				
1970-71	37	24				
	493	144				

^{*}No training available

HUNTING LICENCE EXAMINATIONS

The objective of the hunting licence examination is to provide a uniform method of testing the skill and knowledge of new hunters in handling firearms while hunting and thereby reduce hunting accidents.

The hunting accident rate shows a very impressive decline in the past decade. In 1960, there were 146 hunting accidents, of which 34 were fatal, providing a ratio of 27 accidents per 100,000 licences. In 1970, there were 78 accidents, of which eight were fatal, providing a ratio of 13 accidents per 100,000 licences.

Compulsory training and the province-wide examination of all new hunters by conservation officer examiners has been responsible in large part for this reduction in accidents.

The total number of examinations in 1970 was 23,943, continuing a steady increase from the time of its inception. The success rate for examinations passed has levelled off in the order of 80 to 85 per cent. During the three years that the hunting licence examination has been in effect, 72,000 hunters have been tested.

The twenty-one forest districts reported the following examinations conducted in 1970.

Kemptville	1,774
Lake Erie	3,891
Lake Huron	2,831
Lake Simcoe	4,327
	939
Lindsay	
Parry Sound	557
Pembroke	414
Tweed	1,612
Chapleau	105
Cochrane	401
Kapuskasing	372
North Bay	752
Sault Ste. Marie	922
	1,545
Sudbury	508
Swastika	
Fort Frances	309
Geraldton	184
Kenora	390
Sioux Lookout	243
Thunder Bay	1,187
White River	230
TOTAL	23,493

CENTRAL LICENCE BUREAU

In 1970, the Central Licence Bureau received about 1,800,000 licence copies from some 3,900 licence issuers across the Province. Of these, about 600,000 were resident angling licences, 600,000 were non-resident angling licences, and the remaining 600,000 were hunting licences.

These licences were used to verify licence purchases in order to issue a duplicate licence if a current one was lost. The hunting licences were also put on file to meet requests from hunters to verify licence purchases in compliance with hunter training regulations. To date, there are hunting licence copies on file since the fall of 1968, about two million in total. In the past year, over 800 hunters lost their licences and requested the verification services of the Central Licence Bureau for which a search fee of \$1 was charged.

The licence files serve as the universe from which a sample of sportsmen is selected. These sportsmen receive questionnaires that are designed to evaluate the state of the resource (whether it be angling or hunting) as well as its impact on our society. The survey results aid in planning future fish and wildlife management. The Bureau contacted some 80,000 sportsmen in angling and hunting surveys during the year.

SEIZURES AND CONVIC

DELEGRES / III DE CONTROL CONT	1966-7	1967-8	1968-9	1969-70	1970-1
No. of Offences No. of Convictions Cases Dismissed	2,942	3,404	3,557	5,164	5,275
	2,626	3,239	3,459	5,219	4,402
	93	105	183	151	177

WITHOUT A LICENCE (CONVICTIONS)

Activity Activity	796 No. Frequ	0/0	No.	07-8 0/0 uency	No.	68-9 % uency	No.	9-70 º/₀ uency	1970 No. Frequ	0/0
Fishing without a licence	443	7.7 15.9 1.2	467	14.9 23.1 41.1				19.5 10.6 .58	1,081 476 20	24.6 10.8 .5
Total	652	24.8	659	20.3	858	23.37	1,432	30.68	1,577	35.8

VIOLATIONS, 1970-1

1. Angling with more than two lines 2. Possession of overlimit of fish 3. Taking fish by means other than angling 4. Taking fish during the closed season 5. Possession of a spear 6. Miscellaneous, including fishing without a licence	324 327 298 235 107 1,535
Total, Fishing Violations	2,826
1. Possession loaded firearm in a vehicle 2. Hunting during prohibited hours and jacklighting 3. Possession of loaded firearm in a power boat 4. Hunting closed season 5. Hunting protected birds 6. Failing to wear identification badge 7. Possession game in closed season 8. Miscellaneous, including hunting or trapping without a licence 9. Careless hunting	351 374 158 100 30 322 30 1,065
Total, Hunting Violations	2,449
Total Violations	5,275

Surveys in 1970	Quantity Samples
Non-Resident Angling	16,512
Resident Angling	
Non-Resident Deer	3,445
Non-Resident Moose	7,242
Resident Deer	9,541
Farmer's Deer	523
Resident Moose	
Small Game Survey	13,394

Even though computers are utilized in the surveys, several clerks are required to edit and code licences and questionnaires. Some 4,000 man-hours were spent in the operation of these surveys.

SEIZURES AND CONVICTIONS

The Seizures and Convictions Unit recorded 5,275 offences with 4,402 convictions registered. The remainder were withdrawn, unknown, dismissed or are incomplete to date. This is again the highest number of offences on record for any single year. The annual increases experienced since 1962 are probably the result of increasing numbers of hunters and anglers and are following parallel courses even though law enforcement staffs have not been increased substantially.

FUR FARMING

For the second consecutive year, the December sales of the Canadian ranch mink pelt market opened with price declines for all types of mink. These declines ranged from 10 to 30 per cent with an over-all average of 15 per cent as compared with the December, 1969, sales.

About 70 per cent of the ³/₄-million pelts offered in the initial sales were sold despite the fact that the prices received in many cases were lower than production costs.

The January sales showed a general improvement with price increases of 10 per cent over the December sales, and good clearances were recorded. While the sales were well attended by domestic and foreign buyers and competition was good, a general price resistance was evident. By the end of February, however, 90 per cent of the Canadian ranch mink crop was sold. While further improvement in price was noted during the remainder of the season, these increases had little affect on the poor price average realized for the bulk of the 1970 mink crop.

The low prices paid resulted in a wide variety of mink garments being offered at the lowest prices in many years. Many retail customers, not previously interested in mink, were attracted by the low prices, and large quantities of pelts were consumed but at prices which would not permit the mink producer an adequate profit.

As a result of the low prices received during the past few years and particularly in the 1969-70 and 1970-1 seasons, the number of mink ranchers discontinuing business has increased. In Ontario, some 69 ranches, or 19.6 per cent of those operating in 1970, will not be operating in 1971. However, the contraction the industry has suffered in other provinces and in the United States runs as high as 30 per cent. It is estimated that this will result in a decrease in world production of four and a half to five million mink pelts.

With this sizeable decrease in world production and the anticipated upward swing in the economy of the United States and Canada, the prospects of a more buoyant mink market in the next selling season look bright.

A notable casualty of the poor mink prices of the last few years was the New York Auction Company of New York and it's Canadian subsidary, Canadian Fur Auction Sales Company, located in Montreal. Both discontinued business in 1970. This reduction of the fur auction segment of the industry may have hidden benefits to the Canadian fur trade in that the fur crop will of necessity be offered in fewer outlets and therefore in larger quantities — a feature which interests fur buyers.

U.S. rancher organizations were again unsuccessful in their bid to obtain quotas on the importation of mink pelts into the United States market. Some 44 bills, which would establish quotas and restrictions in varying degrees, were lost with the termination of the sitting of the Congress. They could, however, be re-introduced to the next Congress.

With a view to stemming the number of pelt-outs and make it possible for mink ranchers to continue in business, the Government of the Province of Alberta launched a program of guaranteeing loans for the fur farmers of that Province to provide the necessary operating capital. Similar programs are under consideration in some of the other provinces.

In the present economic squeeze where large ranches are pelting out, there is the real possibility of having top-quality breeding stock, that took years to develop, pelted and its potential lost to the industry. Precautions in this area should be taken by the industry to ensure that Canada's prestigious position for producing the finest quality mink will not be weakened or indeed lost.

The production of mink on Ontario ranches in 1970 was inconsistent. Some ranchers reported good to better than average production, whilst others reported less than average to poor production with no apparent cause for either variation. From information obtained from the Fur Farmer's Reports covering 1970, the Ontario production per female

kept as a breeder was calculated as 3.2 per cent, and the mortality from all causes on ranches during the same period was 3.1 per cent. This represents a decrease of 0.3 per cent in production and an increase of 0.7 per cent in mortality as compared to 1969. The apparent natural reproductive deficiency of female mink is a matter that should command the attention of the industry and researchers.

The current demand for long-haired furs for use in the manufacturing of fun-furs has ensured the purchase of the small production of ranch-raised fox pelts at good prices. The United States import duty on fox pelts was reduced to 22 per cent ad valorem effective January 1, 1971. A further reduction to 18.5 per cent will be effective January 1, 1972.

Ontario fur farmers are somewhat concerned with the dwindling supplies of chicken offal which is available to them for mink food. The pet food and rendering companies have bid the price of the offal out of the financial reach of the fur farmer. It would appear that the situation will worsen when existing contracts held by fur farmers are up for renewal. Other feed products appear to be in adequate supply.

There were five cases of distemper reported during the year. In three cases, substantial losses were experienced with one of the cases suffering some 650 mink deaths. While preventative innoculation was carried out in this case, there was some evidence the mink had contracted the disease before the vaccine was administered. An accurate assessment of the incidence of plasmacytosis on Ontario ranches is difficult as ranchers carry out tests on their own without assistance or reference to the Ontario Veterinary College. All mink showing positive to the test are pelted, and in this manner the disease is controlled.

The Ontario Fur Breeders Association held twelve monthly meetings of the Directors, as well as the Annual Meeting and two special general meetings of the members. A Field Day in October and a Live Mink Show in November were among the other educational functions held by the Association. Three delegates were appointed to represent the Association at the annual meeting of Canada Mink Breeders which was held this year in Kitchener, Ontario.

During the year, the Ontario Fur Breeders Association presented a brief to the Minister of Revenue seeking relief from the tax under the Ontario Retail Sales Tax Act in those areas in which other farmers enjoy an exemption. The petition was granted, and now the same agricultural exemptions apply to fur farming.

The Association also presented a brief to the Government requesting the transfer of the licensing of fur farms from the jurisdiction of the Department of Lands and Forests to the Department of Agriculture and Food. This petition was also granted, and the jurisdiction, together with the Supervisor of Fur Farms, was transferred, effective April 1st. Henceforth, the yearly reporting on fur farms will be found in the annual report of the minister of Agriculture and Food.

FISHERIES SECTION SPORT FISH AND HATCHERIES

The objectives of the Unit are to encourage and promote recreational fishing within the biological limitations of the resource; to augment it where possible and desirable by the planting of hatchery fish and the development of additional fisheries; and to encourage wise use of the resource.

Ontario is blessed with numerous lakes and streams, together with great diversity in climate, geology, access and population densities. It follows, therefore, that fish management practices must be both varied and flexible.

Unit personnel, in conjunction with field staff, are involved in the planning and co-ordination of programs to assess the fishery and its degree of utilization by anglers; to determine the effectiveness of fish plantings; to establish angling seasons and regulations and to test their validity; to initiate habitat improvement; to study fisheries problems and to evaluate remedial action; to provide public access to natural waters and to acquire and develop public fishing areas; and to dispense information and promote the sports fishery.

The production and distribution of hatchery fish stocks are important aspects of fish management in Ontario. An extensive system of fish hatcheries is operated, and the program involves the modernization of facilities, the application of new fish cultural techniques, and the experimental rearing of exotic and hybrid species for the Great Lakes.

ANGLING REGULATIONS AND SUMMARY

Nine short-term fish sanctuaries were established on specific portions of important, accessible spawning grounds for rainbow trout in streams tributary to Georgian Bay and in two on Manitoulin Island. The period of closure will be from March 1st to the Friday immediately preceding the second Saturday in May.

Wolfe Lake, Bob's Lake and Silver Lake, formerly on the boundary line between Divisions 9 and 1, were placed in Division 9.

The part of the Cataraqui River lying south of the La Salle Causeway was placed in Division 11.

The boundary between Divisions 14 and 9 was established

along the northern boundary of Tweed Forest District from Highway No. 512 westward to Algonquin Park.

The open season on maskinonge in Divisions 3, 4, 5, 6, 7 and 8 was established as the first Saturday in June to December 15th.

The daily catch limit on lake trout in Division 10 was reduced from five to three.

The section of the Saugeen River, County of Bruce, having an extended fall season on rainbow trout, was extended upstream to the dam at Walkerton.

The Summary of the Ontario Fishing Regulations was further improved in appearance and content. The written descriptions of Divisions were deleted to leave space for the display of more helpful information. The approximate locations of fish sanctuaries were indicated on the Summary maps.

LICENCES

Problems associated with the mercury contamination of fish in specific areas had their effect on licence sales during the summer of 1970. Reductions in sales had been predicted, and they took the form of a 7.9 per cent decrease in the number of non-resident seasonal licences sold and a 6.8 per cent reduction in the sale of resident licences. Of equal interest, and perhaps related in some way, were two increases, i.e., a 5.2 per cent increase in the sale of non-resident three-day licences and an 11.5 per cent gain in the number of non-resident organized camp licences.

The domestic, or sport fishing, licence sales also registered some changes. The non-resident smelt licence sales, which includes the non-resident bow and arrow fishermen, experienced a 48 per cent reduction in 1970-71. The sale of resident smelt licences increased slightly, while the angler's bait-fish seine licence showed a drop in popularity. The sale of domestic dip-net licences continued to increase and registered a 44 per cent gain in 1970-71.

SALE OF ANGLING LICENCES

Type of Licence	1968	1969	1970
Non-resident Seasonal Non-resident 3-day	446,468 161,473	446,024 177,353	410,854 186,666
Non-resident (Organized Camp)	7,670	6,998	7,800
Resident	69,648	603,670	562,604

DOMESTIC OR SPORT FISHING LICENCES

Type of Licence	Number of Licences Sold		
	1968	1969	1970
Non-resident Smelt	4,870*	6,112*	3,155*
Resident Smelt	3,941	4,493	4,623
Angler's Bait-fish	322	351	294
Domestic Dip-net	826	1,076	1,553

^{*}Includes non-resident bow and arrow fishermen.

LICENCE SURVEYS

Answers received in an angling licence survey, conducted in 1970, reveal that 24 per cent of all Ontario males over 18 years of age purchased an angling licence in 1969. The figure was derived from a sample of the 608,000 residents who bought licences in 1969. Younger males and all female residents were exempt from the angling licence requirement in Ontario and not included in the survey; no statistics are available on the number of anglers in these categories.

The survey disclosed that 82.5 per cent (501,600) of resident anglers reside in southern Ontario (south of the French and Mattawa Rivers and Lake Nipissing). About 23 per cent (138,180) live in the Metropolitan Toronto-York County region. Another 41/2 per cent (28,330) are in the Hamilton area.

In southern Ontario, 22 out of every 100 eligible males bought angling licences. In northern Ontario, nearly double this proportion, 41 out of 100, obtained an angling licence. The lowest ratio was displayed in the Windsor-Leamington region where only 13 out of every 100 eligible males purchased an angling licence. This contrasted with the Fort Frances-Rainy River District where 71 per cent purchased licences.

The survey revealed a wide range in the ages of Ontario anglers. The 20-30 age group is almost double the 60-70 group. Most anglers are in the 20-40 age group, although there is a significant representation from the older ages. In fact, licences were purchased by fishermen in the 99-year group. This seems to prove that the sport of angling knows no age limit.

EXTENSION

Services to private landowners were first recognized as a separate program in 1968 with the appointment of extension biologists. In 1970, one head office and three field biologists (Lake Erie, Lake Huron and Lake Simcoe forest districts) staffed the program. The type of services presently available

is limited to the distribution of literature and advice, including field inspection, for landowners interested in developing a fishery or the fish producing potential of their property.

In the six most southerly districts, private landownership ranges from 99 per cent in the southwest to 97 per cent in Lake Simcoe district, and 80 per cent and 74 per cent in the disticts of Lindsay and Tweed, respectively. Within this area, a sample survey of owners, with over 50 acres of land, indicated 61,929 owners with stream property and 25,503 owners with some fishing on their property. These figures show the potential demand for services in the future.

PROVINCIAL FISHING AREAS

Provincial Fishing Areas are located at Mount Pleasant, St. Williams, Normandale, Earl Rowe Park, Holiday Beach Park, Pinery Park, Wheatley Park, Cornwall Recreation Area, George Challies Pond (Morrisburg), Inverhuron Park and Hill Lake Hatchery.

These 11 pond areas are operated under intensive management to provide public fishing for brook trout and rainbow trout. Most of the areas are near urban centers where opportunities for day-use angling are severely limited. In 1970, they had over 70,000 angler visits for 200,000 hours of angling and a catch of 51,000 trout.

During the year, the Department acquired 190 acres on the Plane River in Mulmur Township, Simcoe County, for public fisheries development.

WATER QUALITY STUDIES

In Ontario, mercury was recognized as a potential pollution problem in the spring of 1970, and an extensive program of fish sampling was begun immediately by the Department in waters known to have received waste mercury from industry.

Several waters, scattered over the province, contain species of fish with mercury concentrations well in excess of ½ ppm. These problem areas, all associated with mercury discharges from chlorine-alkali plants or pulp and paper mills, are portions of the English-Wabigoon-Winnipeg River system, St. Clair River, Lake St. Clair, Detroit River, eastern Lake Ontario and the St. Lawrence River, and the Ottawa River downstream from Ottawa.

In addition, many lakes have been found containing fish of some species which are above the 1/2 ppm level (mostly 1/2 - 1 ppm). In these waters, no local sources of mercury from human activities are known; mercury deposits in watersheds or atmospheric fallout are possible sources.

Extensive testing is being carried out on fish and fish products entering the domestic and export markets to ensure that they comply with quality standards established by health authorities.

Every effort is being made by many departments of the Ontario Government and the Canadian Government to resolve the mercury problem in Ontario as quickly as possible and maintain the valuable sport and commercial fisheries which have been affected.

Again in 1970, the Department, in co-operation with the Ontario Water Resources Commission, carried out a program of sampling on bottom organisms, aquatic vegetation, sediments and fish from the Muskoka Lakes watershed to provide baseline data on the levels of pesticides following the widespread use of DDT in these areas over the years. As a result of legislation enacted in 1968, the use of DDT for blackfly and mosquito control in such recreational areas has been prohibited.

In this age of increasing industrialization, the Department is concerned about the possible effects to fisheries from heated water discharges from several large thermal Generating Stations currently under construction or proposed for sites on the shores of the Great Lakes.

One such site is on Lake Erie at Nanticoke where a large station is under construction and where a joint study, involving Ontario Hydro, Steel Company of Canada, Texaco Canada Ltd., Ontario Water Resources Commission and the Department, is under way to consider the possible effects of these heated discharges. As part of this overall program, the Department will begin a detailed three-year study on the fishery in the spring of 1971.

NETTING CREWS

The use of impounding gear (trap nets) is of increasing importance to fisheries workers. With this type of equipment, fish can be captured, examined or tagged, and returned to the water unharmed. Netting crews, stationed at Maple and Thunder Bay, provide trap nets for the use of District personnel on field projects and help to maintain such gear by repair or replacement. Field personnel are instructed and assisted on netting projects, and some of those, involving exceptionally large nets or difficult sites, are conducted by net section staff.

The netting crew at Thunder Bay was engaged in ten field projects in northwestern Ontario in 1970. Two projects were of particular significance as they involved a demonstration of the use of trap nets in the taking of whitefish in the Kenora area and the taking of crappies in the Fort

Frances district. Eight new trap nets were built for district use; two nets were remodelled; nine were overhauled and repaired; and seven were loaned out to districts.

The staff at Maple participated in the collection of lake trout and yellow pickerel eggs for hatchery purposes. They provided numerous species of live fish for display at the Toronto Sportsmen's Show and the Canadian National Exhibition. In addition, they harvested smallmouth bass at two locations to assist the Ontario Water Resources Commission in their mercury studies; they transferred live pickerel from Tunnel Lake to Aubrey Falls Impoundment in northern Ontario; they harvested maskinonge in Lake Scugog to assist researchers in the study of sarcomas (lesions) on fish; and they gave instruction in the use and care of impounding gear to department staff at the Forest Technical School.

To augment or replace stock on hand, ten new trap nets and three retainers were built, four gangs of gill nets were hung, three small mesh trap nets were constructed for Research Branch, and some 97 nets were overhauled and repaired.

Young anglers with rainbow trout, Mount Pleasant Provincial Fishing Area. Photo by C. Van Gemerden.



FISHERIES MANAGEMENT UNITS

Units are established on large and complex lake systems to inventory, plan and manage the fishery resource.

New Units were established during the year on Lake Huron at Owen Sound and on Lake Superior at Sault Ste. Marie. The biologist in each will co-ordinate the activities of several forest districts, assisting in the planning and implementation of fishery projects designed to use fully the commercial and recreational potentials of the two Great Lakes.

A biologist came on staff to co-ordinate the activities of the ten Units and several, special fisheries investigations.

Lake St. Clair. Unit quarters near the mouth of the Thames River were partially renovated. Work priorities were changed by the problems of mercury contamination in fish, and personnel were involved in the provincial loans program to commercial fishermen, and in studying the effects of mercury pollution on the sport fishery.

Lake Nipigon. With the sounding of Ombabika and Pijitawabik Bays, all the major bays in Lake Nipigon have been surveyed. Investigations indicated that the large silt load carried by the Little Jackfish River into Ombabika Bay has affected bottom fauna within one-half mile of the river mouth. Yellow pickerel were examined and tagged in the Wabinosh River to determine the dispersal rate of this spawning population. In the same tributary, test-netting indicated that a substantial number of whitefish use the river for spawning. Northern pike were sampled and tagged in McIntyre and Bonner Bays to assess the harvest by commercial and sport fishermen. Brook trout investigations continued on several tributaries of the lake.

Bay of Quinte. Investigations to assess the commercial and sport fisheries continued during 1970. The reduction in the harvest of whitefish and yellow pickerel appears related to environmental changes resulting from eutrophication. The sport fishery for yellow pickerel in Hay Bay is presently supported by only the older year classes of fish. Approximately 850 yellow pickerel were tagged from the spawning runs on four tributaries of the Bay of Quinte, to measure the exploitation by anglers and determine migration patterns. Unit personnel surveyed 23 tributaries of Lake Ontario to define the extent of sea lamprey populations.

Kawartha Lakes. Game fish in Chemung and Buckhorn Lakes were netted and tagged to determine migration patterns. Scheduled creel surveys were used to determine angler success, total harvest and rate of recapture of tagged fish. In co-operation with Ontario Water Resources Commission, Unit personnel began planning a special study of the effects

of the removal of aquatic plants on fish populations and the deceleration of eutrophication.

Lake of the Woods. Investigations of the interaction of suckers and spawning yellow pickerel were continued in the area of Nestor Falls and Blindfold Dam. Approximately 15,000 pounds of suckers were removed while tagging 1,200 yellow pickerel. Recaptures of tagged fish will determine the rate of angler exploitation and allow comparison of patterns of migration with those of shoal-spawning yellow pickerel. Black crappies have increased in importance to both commercial and sport fishermen. Consequently, studies were initiated on the Steven's Bay population, and trap-netting was demonstrated to commercial fishermen as a means of selecting black crappie without affecting populations of sub-adults of other game fish. Routine creel surveys and commercial catch-sampling were continued to determine relative age distribution of the harvest. Important game and commercial fish were collected to determine size-specificity of mercury contamination.

Rainy Lake. Studies to determine the causes of fluctuations in recruitment rates of yellow pickerel were concentrated in Red Gut Bay and the North and East Arms. Incidence of yellow pickerel fingerlings decreased from 525 to 395 per acre between 1969 and 1970, but the 1970 estimates were greater than those for 1967 and 1968. Experimental netting in the East Arm, in co-operation with the Minnesota Conservation Department, indicated an increase in the abundance of older yellow pickerel from 1.6 to 4.2 fish per lift between 1966 and 1970. Creel surveys showed that in 1970 anglers harvested an estimated 31,000, 22,000 and 20,000 pounds from the North and East Arms and Red Bay, respectively. The respective catch rates were 0.19, 0.50 and 0.60 fish per angler-hour. The commercial harvest of black crappies increased by 310 per cent and, for the first time, exceeded the commercial catch of yellow pickerel. Because of the increasing interest in the black crappies shown by commercial fishermen, a survey and trap-net demonstration was carried out during June and July. Besides tagging 1,800 crappies for the investigation of their movements, the demonstration confirmed the great increase in the black crappie populations.

Nipissing-Timagami. During the spring, 612 yellow pickerel were tagged and released in Lake Nipissing. To continue this long-term study of the yellow pickerel migration, fifty marked fish were transferred from their home territory to another part of the lake. Creel surveys of resident and non-resident anglers were continued. Undersized sturgeon caught by commercial fishermen were marked and released. On Lake Timagami, 1,775 anglers were interviewed during the winter fishing season; most anglers were fishing for lake

trout and whitefish, and these species constituted more than 90 per cent of the sampled catch.

Lake Simcoe. More than 2,700 anglers were interviewed during the annual creel survey of the winter fishery; it was found that the average angler fished three hours a day. Spawn collection from yellow pickerel continued on the Talbot River during 1970; 260 quarts of eggs were collected, and 700 adults were tagged and released. Fifty quarts of spawn were collected from 250 fish during a continuing study of lake trout populations. Co-operative studies with the University of Guelph and the Ontario Water Resources Commission were continued. These projects included investigations of the bioecology of smallmouth bass, suckers and smelt in the Pefferlaw River and Lake Simcoe.

SPECIAL PROJECTS

Georgian Bay. The study of yellow pickerel was continued in the Moon River area throughout 1970. Trap-netting was carried out during two periods, April 29 to May 22, and August 5 to 28. A total of 3,540 pickerel were captured; 2,617 were tagged with monel metal jaw tags and released. No estimates of the spawning population were made in 1970 to compare to the estimates of 22,500 pickerel in 1969 and 21,000 in 1968.

Tag returns from all sources (not including spring trapnetting) totalled 537 and, as in the past, indicated that the pickerel population becomes widely dispersed after the spawning period. The rate of this dispersion appears to be dependent on the rate of water flow in the river. The 1965 year class was dominant in 1970, comprising 47 per cent of the spawning population.

A creel census showed that 1,029 anglers spent 2,404 hours fishing and caught 96 pickerel in the river. The angler index of catch rate dropped from 0.07 to 0.04 mainly as a result of the decreased flow of water in the river.

Angling success in the Shawanaga Basin appeared to be holding steady or slightly increased from 1969. The trend for pickerel tagged to move further afield after spawning was seen again in 1970. Over 45 per cent of the fish tagged in "inside" waters moved to off-shore waters, presumably to occupy vacant niches formerly inhabited by discrete off-shore populations.

Commercial landings of pickerel continued to decrease, dropping from 23,483 pounds in 1969 to 15,228 pounds in 1970. The reason for this appears to be mainly a decrease in fishing effort.

This study has succeeded in indicating the importance of the large population of pickerel spawning in the Moon River, which supports the fishery for some 40 to 50 miles along the eastern Georgian Bay shore. The tendency for Shawanaga Basin pickerel to move into off-shore waters shows promise for the rehabilitation of the pickerel stocks in these areas. The importance of this area for fishing necessitates the continuance of these valuable monitoring and assessment studies.

Bark Lake. Fall netting on the spawning beds in Bark Lake resulted in the capture and release of 228 lake trout of which 39 had previously been tagged. The remaining 189 were tagged before release. The return of tags by anglers was again encouraged and resulted in 20 recoveries in 1970. No evidence of the 1966 planting of hatchery fish was seen in the fall netting or the anglers' catch. Efforts to determine the average incubation period for lake trout eggs were continued and resulted in an estimate of 107 days. Expressed as a function of temperature, the incubation may be said to represent 591.6 centigrade degree-days. During the period October 15, 1970, to January 25, 1971 (estimated incubation period), the Bark Lake water level was lowered a total of 12.9 feet. This long-term project was initiated in 1965 to determine the effect of extensive winter drawdown of water on the natural reproduction of lake trout; it will continue until 1975.

Lac Seul. Investigations of the effects of water level fluctuations on fish production continued in 1970. Spawning areas for northern pike and yellow pickerel were assessed by helicopter during spring break-up. Species and age compositions were measured by intensive netting operations in conjunction with a sampling program of the commercial harvest.

PROVINCIAL FISH HATCHERIES

We have supplemented our rainbow trout brood stocks with a rapid-growing, fall-spawning variety that is not only desirable for the production of catchable fish but is also far more amenable to hatchery culture. Though not yet mature, this new stock will go far in meeting the growing demand from Provincial Fishing Areas.

Public interest in provincial fish hatcheries is increasing, and the total of visitors to the hatcheries in 1970 was in excess of 94,000. The Chatsworth hatchery accommodated over 15,000 visitors and gave conducted tours for all organized groups. The Normandale hatchery has developed three nature walks and provides a self-guiding, descriptive pamphlet to augment the visitor's experience.

Interest in the aquatic environment, and in fish culture in particular, is perhaps a reflection of the public's increased awareness of environmental problems and of their concern for our natural resources.

The visiting public are welcome at our hatcheries seven days a week. Our conducted tours, of special benefit to school children, afford visitors an opportunity to observe spawning, incubation, and fish rearing procedures.

Our extension service at present is generally limited to giving advice (and a limited amount of literature) on the development of private hatcheries and aquaria. However, several field trips were made during the year to assist in problem areas.

Research continues into hatchery fish disease control and eradication, diet refinement, transportation requirements, and techniques for maximizing survival of hatchery fish following release.

The nutritional requirements of hatchery fish are now met with specially formulated dry diets that replace the ground meats on which hatcheries were once dependent. The new diets have not only increased the productive potential of our hatcheries, but they also have a cost benefit six times that of the meat diets. An additional advantage of the dry diets is that they permit the use of automatic feeders with a subsequent reduction in labour and an improved food conversion.

In the fall of 1970, the Pembroke hatchery was cleared of fish and completely sterilized in an attempt to rid the station of the lethal Infectious Pancreatic Necrosis (IPN) virus. Though drastic, such action is fully warranted to prevent the further spread of such contagious and lethal disease organisms.

Our full complement of sixteen hatcheries in thirteen forest districts was operational in 1970. Neither North Bay nor Sandfield reached their full potential because of pending repairs and renovations to facilities.

An increased commitment of splake yearlings for the rehabilitation of Lake Huron (following the completion of sea lamprey treatment) has resulted in the need for increased hatchery production facilities. For economic reasons, ground water was investigated on Crown lands at the Chatsworth hatchery site. A significant water supply was located, and plans were developed for the Nicholson substation adjacent to Chatsworth hatchery. The productive potential of this new site is expected to approach 800,000 yearling splake annually.

This program suffered one serious setback when over 300 highly selected and mature brood fish were either stolen or destroyed by vandals at both Chatsworth and Tarentorus hatcheries.

Returns from initial plantings of splake in Lake Huron and Georgian Bay have been gratifying. Angler returns indicate high survival and rapid growth rates. Assessment of their natural reproduction potential will be delayed until the fall of 1971.

Coho and chinook salmon were reared for Lake Ontario at Wiarton and Chatsworth hatcheries. Experimental plantings of coho in the western basin of Lake Ontario have proven successful in spite of heavy predation by sea lampreys. Chinook returns will be delayed until their maturation in the fall of 1973 and 1974. In the meantime, continued plantings of coho are not only creating a new sports fishery in the populous Toronto area, but are affording a means of monitoring the effect of lamprey control measures employed on these waters during the summer of 1971.

The use of two-year-old hatchery lake trout in the Muskoka lakes has been effective in enhancing a fishery which appeared doomed through the indiscriminate use of the pesticide DDT. Corrective measures have been taken to prevent continued pollution of these waters, but the residual influence of DDT has severely limited natural reproduction by resident fish.

Provincial Fishing Areas, which provide quality angling in areas of high population density, were stocked with catchable-size trout from Normandale, Chatsworth and Codrington hatcheries.

A number of waters owned and operated by the Conservation Authority Branch of the Department of Energy and Resources Management were maintained in a like manner with catchable-size brook and rainbow trout from Chatsworth and Normandale.

Studies of the characteristics of the Infectious Pancreatic Necrosis virus at Pembroke, in co-operation with the Veterinary College and the Department of Microbiology at the University of Guelph, produced significant results as well as a practical approach for eliminating the virus from our hatchery.

University and Government research agencies were provided with provincial hatchery fish for studies related directly or indirectly to improving our knowledge of fisheries management. Included here are brook and rainbow trout and minnow species used for bio-assays by the Sea Lamprey Control Unit of the federal Department of Fisheries and Forestry and by the Ontario Water Resources Commission in a mercury pollution study in the St. Clair River.

Our commitment to the Great Lakes Fishery Commission for the rehabilitation of Lake Superior (500,000 lake trout yearlings annually), following sea lamprey control on these waters, fell short by 25,000 because of inadequate spawn available in the fall of 1969.

The private hatchery operators of the province appear to have become self sufficient in fall-spawning rainbow trout eggs. Only 20,000 eyed eggs were requested for purchase from the Department during the 1970-71 fiscal year.

A Minister's Committee was created to study and correct problems within the private hatchery industry. The intent is to develop a sense of independence and strength in the industry and within its organization, the Canadian Fish Farmers' Association.

During 1970, the two private hatchery licences (a — for restocking purposes; and b — for human consumption purposes) were grouped into a single licence for the propagation and sale of brook and rainbow trout and largemouth and smallmouth bass. A new licence covering the operation of a "fishing preserve" was initiated, and a licence to sell trout (applicable to wholesale and retail trade) was renovated. The new legislation was entitled Ontario Regulation 181/71 under The Game and Fish Act, 1961-62.

11¹/₂-pound coho, taken by commercial fisherman in Georgian Bay near Wasaga Beach. Photo by T. Jenkins.



NUMBER OF FISH DISTRIBUTED FROM PROVINCIAL FISH HATCHERIES, 1970

	Hatcheries	Brook Trout	Lake Trout	Rainbow Trout	Yellow Pickerel		Other Species	
NORTH BAY	Yg	.114,350		97,700	_		WART LEE	
PEMBROKE	Fg Yg		_	_	_			
THUNDER BAY	Fy	. —	13,760	_	_	_	_	_
MIDHURST	Yg	. 25,420	4-44-4-000	_		_		
*WIARTON	Fg		68,404	2,177	_	—	_	
*CHATSWORTH	Yg	.122,352	17,240	_	_	Splake 247,786	Coho 147,230	_
DORION	EE		_		_	_	-	_
	Fg		29,700	10,000	_	_		_
	Yg		237,300	57,450 —			30,770	_
	Ax			_	_	_		
TARENTORUS								
TAKENTORUS	Fg Yg		497,238	— 37,700		8,800		
	Ax		16	<i>57</i> ,7 00		40		
*SANDFIELD							Smallmouth Bass	
	Fy			_			71,000	
	Yg	.150,065	_		_		_	_
DEER LAKE	_							Maskinong
	Fy		-	_	_	_		2,700,000 27,350
	Fg		20,240	_				27,330 —
NORMANDALE	Yg		_	78,934	_	_		_
	П		_	22,143			_	_
CODRINGTON	Yg	. 33,221	_	74,800			_	_
*WHITE LAKE							Smallmouth Bass	
	EE			_	12,700,000	_	_	
	Fy			_	31,262		28,000	_
WESTPORT	Yg	. 84,/00	188,000	_			_	Largemouth Bass
	Fy	. —	_	_	_	_	_	22,400
	Yg	. 65,885	89,300	_	_	_		
SKELETON LAKE	Fg Yg		65,250	5,000			28,500 —	_

NUMBER OF FISH DISTRIBUTED FROM PROVINCIAL FISH HATCHERIES, 1970 (continued)

	Hatcheries	Brook Trout	Lake Trout	Rainbow Trout	Yellow Pickerel		Other Species	
HILL LAKE	Fy Fg Yg II	. 40,000 . 214,730 . 33,560	25,000 124,000 — 1,572	5,000 28,470 — —		Aurora Trout 6,000 — — — —	_ _ _	_ _ _
	5,410,436 Fy 2,448 F ₄ splal			Wiarton, Sandfie n Station	eld and Glend	ora Research Sta	ation	
	EE – eyed eggs Fy – fry	U	- fingerlings - yearlings	II – two year o	olds			

COMMERCIAL FISH UNIT

The Commercial Fish Unit plays an integral role in the scientific management of aquatic resources for the optimum use and enjoyment of the people of Ontario.

The development and management of the commercial fishery is accomplished by — collection and analysis of biological and economic information on the harvest; planning and co-ordinating surveys to assess populations and to evaluate the extent to which they are utilized; protection of the biotic potential through regulations (licences, seasons, quotas and size limits); and the implementation of programs that focus on the modernization of the industry, making it responsive to changing consumer requirements while adapting to a dynamic, renewable resource.

THE COMMERCIAL FISHERY

In 1970, Ontario's commercial fishermen (including bait fishermen) harvested over 51.1 million pounds of fish with a landed value of 8.1 million dollars.

The discovery of unacceptable levels of mercury in fish harvested for human consumption has had a major effect on the commercial fish industry. The areas where fishing has been restricted by regulations are — Lake St. Clair; St. Clair River; Detroit River; Lake Huron waters fronting Lambton County; Lake Ontario waters east of longitude 76° 50′; St. Lawrence River; Ottawa River; and the Wabigoon, English and Winnipeg River systems in the territorial district of Kenora.

Despite this new problem, the industry continued to upgrade its operations. Total capital investment at the end of 1970 was 12 million dollars.

More than 1,800 men were employed in the industry. However, the restrictions imposed because of mercury pollution curtailed the operations of those in affected waters.

The commercial fishermen's catch of 46 million pounds is a decline in harvest of 27 per cent from 1969 and represents an 11 per cent decrease in the return to the primary producer (based on landed value).

Despite the decline in harvest, yellow perch and smelt caught in Lake Erie are still dominant in the provincial catch. Other important species in the Great Lakes fisheries are herring from Lake Superior, whitefish from Lake Huron, and white perch from Lake Ontario. The numerous northern inland fisheries are still the primary producers of yellow pickerel, whitefish, pike and sturgeon.

Bait fish operations, an increasingly important part of the commercial fish industry, provide a valuable service to anglers. Culturing techniques and improved holding facilities have extended the period of supply and enhanced the quality of bait fish sold. Over 85.6 million minnows were harvested and sold for 1.6 million dollars. The bait fish industry, which is controlled through licensing, increased two per cent from 1969 to a total of 4,017 operations.

FISHERIES DEVELOPMENT

In the harvesting of food fishes, the techniques used by a diverse industry, ranging from the canoe and gill-nets of the

remote northern fisheries to the electronically equipped trawlers in Lake Erie, are not necessarily the most suitable for the proper utilization of the resource.

The Department, in co-operation with the Department of Fisheries and Forestry, has initiated and is actively participating in experimental projects designed to develop industrial or fishing techniques which are of economic advantage to the commercial fishing industry. Three such projects were undertaken in 1970.

In an effort to diversify further the fishery in western Lake Superior, a project was designed to test the economic feasibility of trawling for smelt. A Lake Superior trawler and crew were hired to explore Thunder Bay and Black Bay for concentrations of smelt sufficient to support the development of a fishery. Trawling commenced on September 23 and continued through November 8.

Adverse weather conditions severely restricted the experiment. However, the results obtained indicate that bottom trawling would be only marginally profitable during this season.

In Lake Erie, a project was undertaken to determine the economic feasibility of using trawling gear to harvest yellow perch and coarse fish. A Lake Erie trawler and crew were contracted to fish from September to January.

A wide variation in catches appeared to be due to a number of factors such as weather conditions, trawl-net type, size of otter board and concentrations of fish. This program will be continued in 1971.

The third program was to provide technical upgrading and gear development for the northern inland fishery. The efficiency of trap-nets was tested and demonstrated for the selective harvest of whitefish from recreational waters.

Sufficient quantities of whitefish were taken in the lakes tested to warrant the licensing of commercial operations.

INDUSTRIAL SUPPORT

In areas where fishing was restricted because of mercury pollution, financial assistance was made available to commercial fishermen in the form of interest-free demand loans under The Fisheries Loans Act, 1970.

Another program of financial support, to that part of the industry affected by mercury, was made available through the Ontario Development Corporation and the Northern Ontario Development Corporation to assist commercial fishermen who could restructure or relocate their fisheries to exploit uncontaminated species.

The organized marketing of fishery products through the Freshwater Fish Marketing Corporation in northwestern Ontario has, in general, produced a stability of markets and prices which had never before been realized by all the northern fishermen. The Corporation is presently testing the market with new products that are utilizing species of fish which have usually had little commercial value. During the sudden crisis created by the discovery of mercury contamination, the Corporation offered stability and efficient service to the industry in this area.

The Fisheries Prices Support Board continues to provide service to the industry through stabilization of yellow perch prices. This program operates by buying these premium fresh-water fish and holding them in cold storage until the market is ready to accept the supplies. In 1970, prices remained strong and stable, which resulted in few fish being offered to the Board.

The Department continued its participation in programs to assist the industry by providing field services for the Fishing Vessel Insurance Plan, a low-cost insurance program initiated by the Department of Fisheries and Forestry.

Preparing to lift bag of herring into trawler on Lake Superior. Photo by J. A. Chappel.



Statistics of the Fishing Industry in the Public Waters of Ontario for the Year Ending December 31, 1970

QUANTITIES OF FISH LANDED (pounds)

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgian Bay	North Channel	Lake Superior	Northern Inland	Southern Inland	Total Catch	Tota Valu
Bowfin	2,108	35,476	15		_	_		_	1,084	38,683	1,13
Bullheads	236,319	41,678			17	900		14,741	83,898	377,553	74,46
Burbot		_		374	628	4,875	7,366	381,224	1,154	395,621	3,56
Carp	492,732	30,435	2,628	20,804	5,711	10,503	_		138,787	701,600	85,67
Catfish	33,345	49,285	58	10,050	5,870	16	—		5,262	103,886	28,86
Chub	_		_	52,682	126,722	pathone	4,444	97,985	_	281,833	36,09
Eels	145,835	291	_		-	_	-	_	4,791	150,917	37,27
Freshwater Drum .	15,332	259,316	292	33,025	13			138	1,885	310,001	9,47
Goldeye			—	_		_	_	537		537	5
Lake Herring	24,967	_	_	2,259	10,853	2,108	2,901,703	114,276	3,440	3,059,606	246,24
Lake Trout			٠	19	108	16	168,148	30,598	-	198,889	99,22
Lake Whitefish	49,464	76	_	606,920	207,012	176,406	205,869	1,619,380	4,812	2,869,939	1,011,91
Northern Pike	17,777	1,736	837	453	8,102	20,580	3,554	695,488	3,620	752,157	86,88
Yellow Perch	985,395	19,998,810	3,171	244,922	24,501	6,569	7,816	16,478	32,163	21,319,825	3,424,88
White Perch	446,772		_			_		_	5,011	451,783	58,49
Rock Bass and Crappies	56,368	41,797	2,465	251	26	541	_	70,800	21,088	193,336	50,53
Round Whitefish		_		10,038	1,996	3,089	13,013	8,685		36,821	4,17
Saugers	25		_	_		_	8,326	47,451	1,316	57,118	18,39
Smelt	165,015	9,401,972		1,915	2,377	_	353	_	493	9,572,125	436,79
Sturgeon and Caviar	1,072	114	_	1,408	1,455	11,419	974	30,964	9	47,415	65,03
Suckers	17,737	19,989	30,611	60,729	41,457	72,558	48,014	754,800	32,832	1,078,727	21,22
Sunfish	169,283	32,146	35		-			_	78,890	280,354	33,76
Yellow Pickerel	9,673	25,668	42,523	20,942	52,233	34,974	8,612	1,211,443		1,406,068	633,4
White Bass	4,901	195,349	266	7,357	_	_	_	334	1,767	209,974	45,88
Mixed Scrap "Animal Food" .	30,400	1,621,308	4,052	178,080	8,555	30,917	3,952	295,307	13,534	2,186,105	17,3
Total Catch	2,904,520	31,755,446	86,953	1,252,228	497,636	375,471	3,382,144	5,390,629	435,836	46,080,863	
Total Value (\$)	428,556	3,770,281	41,090	436,758	175,716	124,157	427,865	1,066,174	60,253		6,530,8.

tatistics of the Fishing Industry in the Public Waters of Ontario for the Year Ending December 31, 1970

COMMERCIAL FISHING EQUIPMENT

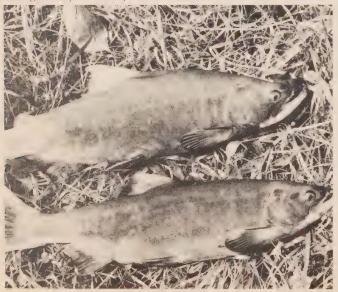
		Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Georgia Bay		Lake Superior	Northern Inland	Southern Inland	Totals
O. OF MEN EMPLOYED)	204	403	51	99	84	39	118	745	93	1,836
SHING BOATS											
of and over	No. Tons. Value	4 45 38,000	132 3,444 2,699,919		27 505 406,151	19 195 219,868	9 188 83,000	22 335 264,200	9 77 67,832		222 4,789 3,778,970
' to 39'	No. Value	45 101,576	47 223,200	18 51,519	15 78,850	37 93,250	13 21,400	41 69,950	60 107,515	3 1,300	279 748,560
nder 20'	No. Value	193 68,882	65 23,006	38 28,638	13 10,750	48 25,635	21 7,060	61 34,275	300 190,894	60 12,285	799 401,425
SHING GEAR											
ill Nets	Yards Value	811,165 242,791	4,603,013 1,411,273		944,160 281,559	628,915 307,045	364,420 75,220	729,688 301,082	727,496 256,603	14,600 10,172	8,823,457 2,885,745
ound Nets	No. Value	1 150	184 63,000	432 185,244	2 2,500	30 45,900	20 15,000	11 10,341	47 37,700		727 359,835
ap Nets	No. Value	34 11,850	219 167,050		118 101,801	7 8,400	12 7,600	1 1,500	75 48,962	3 600	469 347,763
oop Nets	No. Value	718 67,920	106 13,850			_	400-018s	1 210	99 9,290	560 35,400	1,484 126,670
eine Nets	Yards Value	1,561 5,530	6,223 23,293	2,100 6,500	dartemak	_				1,097 2,788	10,991 38,111
light Lines	Hooks Value	24,300 3,920	6,800 2,025	29,900 7,138	150 50	300 100	_		900 75	3,300 335	65,650 13,643
Pip Nets	No. Value	4 20		_			1 5			3 45	8 70
rolling Lines	No. Value	18 860	_	_							18 860
rawls	No. Value		131 110,850	_				7 7,700	4750.000		138 118,550
HORE INSTALLATIONS											
reezers and Ice Houses	No. Value	18 13,320	25 388,415	20 28,115	13 88,265	34 74,260	17 28,150	42 168,750	239 241,322	10 6,485	418 1,037,082
iers and Wharves	No. Value	32 11,400	47 70,049	17 13,616	13 9,150	40 36,850	12 10,150	48 30,850	166 75,664	9 1,143	384 258,872
let Sheds	No. Value	104 82,078	124 503,696	25 64,965	35 134,400	49 70,875	21 19,750	70 75,500		21 9,110	610 1,061,890
otal Value (\$)		648,297	5,699,626	385,735	1,113,476	882,183	267,335	964,358	1,137,373	79,663	11,178,046

NEW CAPITAL INVESTMENT

Equipment	Lake Ontario	Lake Erie	Lake, St. Clair	Lake Huron	Georgia Bay
Engines	\$ 24,781	\$ 67,120	\$ 5,442	\$ 3,650	\$ 8,73
Hulls	8,503	21,552	5,680	2,100	14,56
Fishing Gear	49,594	200,233	37,148	26,379	25,21
Wheelhouse Equipment	929	29,162	574	2,880	2,79
Total Value (\$)	83,807	318,067	48,844	35,009	51,30

North Channel	Lake Superior	Northern Inland	Southern Inland	Total
\$ 8,012	\$ 30,354	\$ 38,934	\$ 2,945	\$189,973
800	10,310	22,087	2,430	88,026
9,627	47,323	45,537	9,465	450,518
350	5,252	3,140	550	45,627
18,789	93,239	109,698	15,390	774,144

Male and female kokanee, taken near Owen Sound in Georgian Bay. Photo by W. D. Marshall.



FISHERIES INVENTORY UNIT

The purpose of the Unit is to ensure that standardized fish eries assessment surveys are conducted on the lakes and streams of Ontario.

A continual refinement and standardization of surve techniques, and a search for and evaluation of better equip ment, is necessary to maintain the high degree of efficience demanded of our survey crews. More efficient echo sounder and conductivity meters were made available during the year for almost all crews. The new equipment reduced the time required to complete a lake survey and thus enabled crews to survey a greater number of lakes during the summer season.

Crews are instructed according to rigid standards, and this year the training course was extended from one to two weeks to allow time for more detailed instruction and practice lake survey. The course was attended by 19 per manent staff members and 52 university students.

During the summer, 812 lakes were surveyed, either for the first time or to update old or inadequate surveys.

The surveys involved a detailed look at the chemica physical and biological properties of each body of wate Echo sounding was carried out to determine depths for th later preparation of contour maps. Chemical tests wer made to record oxygen concentration, acidity and dissolve nutrients. Netting was carried out to obtain information of the fish species present. All observations were necessary for the sound management of the fishery and for other recreational management practices.

Small fish, taken in sampling a body of water, are difficult to identify, but the determination of the number of different species is most important. A co-operative program has been arranged with the Royal Ontario Museum whereby ROM experts assist our crews in the identification of difficult species. In return, the Museum collection receives a large number of fish from all parts of the Province. A total of 48 species were identified during the year.

The experimental stream survey program was continued with a crew surveying major streams in Lake Huron and Lindsay Forest Districts. The surveys were based on new techniques developed the previous year. A stream survey manual is being written to serve as a guide for the crews of a larger stream survey program planned for the future.

The determination of the age of fish, taken in sampling, is an important management tool, but accurate ageing requires a high degree of training. Expert scale readers in Toronto, Sault Ste. Marie and Thunder Bay are training other staff members to do this work.

During the past year, the initial work was completed on the production of lake survey maps for public distribution. Many formats were studied by a wide selection of head office and field personnel, and the most desirable features were combined in a map that provides the information requested by the public in the best way. Sample maps were printed in the approved format.

INDIAN RESOURCE DEVELOPMENT

The policy of the Department in the major portion of northern Ontario favours local residents, mainly Indian bands, in the development of renewable, natural resources. The following projects were carried out during the past fiscal year under the Federal-Provincial Resource Development Agreement.

Indian Delegates. Indians attended district meetings and took an active part in the planning of projects for their Reserves under the Agreement.

Fur. Trappers and their families from James Bay were assisted in establishing themselves on vacant traplines in central Ontario.

Lake Surveys. Intensive and short-term surveys were made of lakes to assess their potential for commercial and sports fishing.

Commercial Fish Management. Commercial fishermen were instructed in the netting, cleaning and packing of fish in a project expected to improve substantially the quality of the product and its marketability. Advice was also given on camp sanitation, care of equipment and bookkeeping methods. The use of trap nets of a special type was demonstrated to Indian fishermen on Lake of the Woods.

Tourism. Indian bands have been assisted in setting up and operating a tourist industry. Goose camps are in operation on Hudson and James Bays and also at Fort Severn, Winisk, Attawapiskat, Kapiskau River, Fort Albany and Tidewater. In total, the camps grossed \$112,500 in the fall of 1970.

Hide Collection. Moose and deer hides were collected from hunters throughout the province, and 2,500 hides were distributed at tanning costs to Indian bands for handicraft work or personal use. The hunter received a compass as a gift for his donation.

Timber Management. Much of the Department's tree planting on Crown lands in the north is done by Indian groups. At the same time, to assist Indians in managing reserve forests, the Department provides technical advice that includes advice on reforestation, logging techniques and lumber production.

Fish limit check by conservation officers at Pigeon River border crossing point, May, 1970. Photo by C. Van Gemerden.





Parks Branch is divided into three sections with duties and responsibilities as follows.

RECREATION PLANNING

Long-range planning for parks and related public recreation areas.

PARK PLANNING AND DEVELOPMENT

Detailed Provincial Park master plans and control of all park development according to approved plans.

PARK MANAGEMENT

Establishment and control of standards of park operations; direction of park interpretive programs; establishment of a nature reserve program; management of operating revenues and expenditures; compilation of statistical data; and management of a program of public access points to water, and a system of canoe routes, hiking trails and snowmobile trails.

CLASSES OF PARKS IN ONTARIO

To meet the broad spectrum of present park requirements and to plan for the future, the Provincial Park system contains five different classes or types. Each offers different recreational experiences, and each provides varied facilities in keeping with the class purpose.

- Class I, Primitive Parks are large areas of natural landscape preserved for recreation, education and scientific observation. They are reserved from natural resource exploitation and from major facility development such as serviced campgrounds.
- Class II, Wild River Parks are significant rivers established for recreation, aesthetic or historic purposes. They are protected from the intrusion of incompatible land and water uses.
- Class III, Natural Environment Parks, landscapes of outstanding aesthetic or historic significance, are established primarily for recreation and education. Other resource uses are permitted, providing they do not conflict with recreation. Facilities and services may be limited so as to interfere as little as possible with the environment. Zones further protect special areas.
- Class IV, Recreation Parks are areas of intensive recreational use in which the environment may be substantially modified to accommodate park users. There are two subclasses to this class: (1) Recreation Areas, which are dayuse oriented; and (2) Campgrounds, which are camper oriented. These parks contain more fully-serviced facilities.
- Class V, Nature Reserves are unique and representative natural areas established for scientific and educational uses. General public enjoyment is permitted, if it is not detrimental to the area.

RECREATION PLANNING

Work continued in the search for future parkland for Ontario residents. Initial progress was made toward the implementation of the Niagara Escarpment Report. The 16,500 acres acquired to date, along with more than 4,000 acres controlled by the Conservation Authorities, represent a significant step in the direction of implementation recommended through the study report.

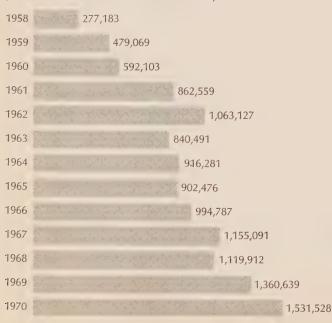
A campsite, White Lake Provincial Park.

TOTAL ANNUAL VISITORS



TOTAL ANNUAL CAMPERS

Starting in 1963, the number of campers shown on renewal campsite permits were not included in the total camper statistics



Work continued in the Canada-Ontario Trent-Severn-Rideau study. The recommendations of this study will provide the basis of future Government Historic Canals.

A major new direction was undertaken in Canada with the completion of background planning for Canada's first underwater park. This park, located at the tip of the Bruce Peninsula, is currently in the master planning stage, with an anticipated opening date in 1973.

CORDS

Phase I of the Canada Outdoor Recreation Demand Study (C.O.R.D.S.) is approaching completion. The combined effort of the ten provinces and the federal government has created data files from park user surveys, national household surveys, and an outdoor recreation facilities inventory.

Phase II of C.O.R.D.S. involves the development of methodologies for interpreting the data collected and applying these findings within the outdoor recreation planning process. The transition from Phase I to Phase II began late in 1970. It is anticipated that Phase II will be completed late in 1972.

TORPS

During 1970-1, the inter-departmental Tourism and Outdoor Recreation Planning Study (T.O.R.P.S.) accomplished considerable progress. A technical committee on tourism and recreation research has been established. The conceptual framework for a systems model to simulate tourism and recreation behaviour has been completed, and computer programming has begun. A data bank, containing facts relevent to outdoor recreation planning, has been initiated. The systems model, as presently conceived, is referred to as a prototype model; and a program has been designed for its refinement as a research and planning tool.

PARK PLANNING AND DEVELOPMENT

Late in the year, a thorough review of the Park Classification system was initiated. The experience gained in the years of its implementation since 1967 has provided an opportunity to assess its significance and effectiveness. This review, to be completed in the forthcoming year, will lead to a more refined and effective system.

MASTER PLANNING

The master planning program was substantially expanded during the past year. A policy report was received on

Algonquin Provincial Park from the Algonquin Park advisory Committee under the Chairmanship of Hon. Leslie M. Frost. A thorough review of this policy paper will lead to the establishment of a master plan which will guide future development and management.

An Advisory Committee was established for Quetico Provincial Park. This committee has undertaken an extensive program of documentation and public participation which will provide the basis for sound future management of this significant area.

As a result of extensive planning studies, Killarney Provincial Park was designated as the second Primitive Park in Ontario. This outstanding landscape will provide an excellent opportunity for wilderness recreation within reach of an urban population.

With these major planning programs, and with the continuing studies on Lake Superior Provincial Park and 10 other parks, a major percentage of parks acreage is now under intensive management review.

PARK MANAGEMENT

Park use increased substantially in the 1970 season. The number of visitors increased by 16.4 per cent, and the number of campers by 12.6 per cent, compared with 1969. A total of 12,172,254 visitors was accommodated in Provincial Parks during 1970; this number included 1,531,528 campers.

As detailed below, eleven Provincial Parks were added to our parks system during 1970, bringing the total to 108. In addition, many natural and primitive zones were recommended during master planning.

Carillon Provincial Park is a Natural Environment Park of 1,600 acres between Highway No. 17 and the enlargement of the Ottawa River caused by the construction of the Carillon hydro-electric power development. The park is located 10 miles east of Hawkesbury, not far from the Quebec border.

Iroquois Beach Provincial Park is a Recreation Park of 345 acres with 7,000 feet of attractive sand beach on Lake Erie. It is located at the foot of Highway No. 19, beside Port Burwell.

Sandbar Lake Provincial Park is a Recreation Park of 7,787 acres, midway between Kenora and Thunder Bay. It provides camping and day-use facilities for travellers on Highway No. 17. It is situated on the forested area surrounding Sandbar Lake, five miles north from Ignace on Highway No. 599.

Wild River Parks were established on the Mattawa River (8,143 acres) and the Winisk River (415,400 acres).

Six Nature Reserve Parks were established as follows: Gibson River, 415 acres; Matawatchan, 160 acres; Montreal River, 108 acres; Porphyry Island, 264 acres; Trillium Woods, 25 acres; and Waubaushene Beaches, 84 acres.

INTERPRETIVE SERVICES

Interpretation of natural and cultural resources to visitors in Provincial Parks is gradually developing into a program of services which is outstanding among comparable North American park systems. The interpretive goals are to transmit information about the environment, primarily to park visitors, and thereby to motivate wise use of resources, stimulate appreciation of park facilities, and enhance the visitors' recreational experience.

Since 1944, when the interpretive program was begun, the annual number of interpretive contacts made with the public has increased to three-quarters of a million individual messages. This spectacular growth has thus been more rapid than the growth in total annual visits to the parks. However, as increasing numbers of outdoor recreationists come from city centres, they require additional informational-educational services for their proper orientation to park facilities and their enjoyment of the outdoors.

Moreover, in serving sheer masses of recreationists, the Department must seek public participation in protecting the public trust; and interpretive messages have proven to be an important means of tackling conservation problems such as wilderness littering, overcrowding and vandalism. Through interpretive services, increased protection has been won for fragile components of the park environments; and current interpretive projects are helping to combat abuse of wild flowers and threatened faunal species.

Important program additions in 1970 included the development of several audio-visual programs. These slide-tape presentations were designed to help orient visitors to the provincial parks system, especially the park classification system; to encourage traditionally southern-park visitors to visit northern areas; and to enhance the visitors' understanding of park management policies and environmental features. Over 100 publications were created; these related to individual provincial parks, interpretive trails, and natural and historical themes. New exhibits were developed for Algonquin Park bird life and mammals. Plans were conceived for an extensive series of exhibits relating visitors to the James and Hudson Bay Jowlands.

Services were expanded at Tweed District with the appointment of an interpretive naturalist to the permanent park staff. A seasonal staff naturalist was assigned to Bon

RECORD OF PARK USE AND PARK FACILITIES IN 100 PROVINCIAL PARKS

		Vi	sitors	C	Campers	Camping	Swimr Beacl
District and Park	Park Classification	1969	1970	1969	1970	Units	(Flee
CHAPLEAU							
Five Mile Lake	Recreational Park	6,674	6,312	4,020	4,735	85	5
Ivanhoe Lake	Natural Environment	35,910	36,704	6,144	10,586	152	8,5
Missinaibi Lake	Natural Environment	1,478	2,295	1,190	1,436	44	2
Wakami Lake	Natural Environment	11,487	13,408	1,324	1,331	60	12,0
COCHRANE		45.207	22.062	4.005	4.420	(0)	
Greenwater	Natural Environment	15,327	22,862	4,095	4,138	60	4.0
Kettle Lakes		46,236	70,527	6,962	9,761	130	4,0
	Natural Environment	_		_	_	30	4
FORT FRANCES Caliper Lake	Pagrational Park	34,597	43,185	9.046	9,884	92	3
•	Natural Environment	23,461	26,817	3,570	6,874	100	1,5
	Natural Environment	45,588	65,072	9,399	25,584	135	6,0
	Natural Environment	43,300	03,072	9,399	23,304	155	0,0
GERALDTON Blacksand	Natural Environment	22,146	16,417	5,016	5,732	94	5,2
Klotz Lake		9,161	17,964	3,173	4,050	. 26	1
MacLeod Lake		42,026	45,903	6,908	7,230	55	4,2
	Natural Environment	56,892	62,739	16,378	20,202	119	5,2
Rainbow Falls		75,771	47,573	24,595	28,028	199	3
KAPUSKASING							
Nagagamisis	Natural Environment	8,367	10,899	2,252	3,925	80	3,0
Remi Lake		45,862	72,956	5,374	6,788	80	1,5
KEMPTVILLE							
Carillon			4,781	_	216	100	1,1
Fitzroy	Recreational Park	118,951	130,045	17,943	17,175	255	6
Rideau River		190,811	203,582	13,223	16,615	185	1,5
Silver Lake		72,067	66,855	22,254	15,474	197	6
South Nation	Recreational Park	37,814	42,941	3,979	4,327	28	
KENORA	Donnational Daul	47.202	40.022	10.631	12.404	93	1
Aaron	Recreational Park	47,202	49,823	10,631	12,494	93 176	2.7
Blue Lake		26,194	39,848	8,866	11,239	176	2,7
Rushing River		88,836	118,441	26,309	28,299	71	0
Sioux Narrows	Recreational Park	22,392	40,654	5,810	5,486	/ 1	J
LAKE ERIE Holiday Beach	Recreational Park	147,701	221,549	2,788	3,302	56	1,7
Ipperwash		352,143	237,030	19,310	20,074	266	1,0
John E. Pearce					20,07 1		
Long Point		194,881	229,206	27,581	18,804	327	1,6
	Natural Environment	842,853	1,175,373	123,725	139,722	1,075	27,0
Port Bruce			_			_	1,0
Rock Point		47,127	53,338	5,158	4,504	47	1,9

Picnic Areas (Acres)	Museums, Exhibit Centres	Nature Hiking Trails (Miles)	Boat Launch Ramps	Trailer Sanitary Stations
4		41/		
4 17		1 ¹ / ₄ 1	X X	X X
1 3	_	3	X X	X
15	_	6	2	X
45 1 ¹ / ₂		5 ¹ / ₂ 1	3	X X
100		2	1	Х
10 15	M	.5 5	2	X X
6	-	9	1 1	X X
2 5 3	_	2	1	X X
5	_	3	2	X
38 30	_	-1/4	1 1	X X
13		_	X	Х
22.5 22	_	_	X	X
2.5	_	_	X X	<u>X</u>
7	_	1	X	X
6 23	_	2	. X X	X X
7			X	Χ
83 8	_	_	1 2	X X
2 16	_	_	1	X X
20 4.5	EC —	4	2	
15	_	_	1 conti	X nued

Echo. The Algonquin interior program was expanded to demonstrate recreational skills to prospective interior users and to discourage littering. Interpretive staff were instructed at two in-service training courses, the Parks Certificate course and the Law Enforcement course.

Research data were gathered in an ambitious program of environmental analysis for both parks facility planning and interpretive messages. Besides an intensive, broadly-based data collection program expanded for Algonquin Park, historical and archaeological material were researched at each of the following parks and reserves: Lake Superior, Mattawa River, Samuel de Champlain, Fort La Cloche, Methodist Point, Sibbald Point, Peterborough Petroglyphs, Darlington, Pinery, Killarney, Rock Point, Iroquois Beach, Missinaibi Lake, Neys, Inverhuron, Burns Lake, Lake St. Peter, Rainy River Mounds, Quetico, and Blacksands.

NATURE RESERVES

Nature Reserves are Class V parks as described under the Park Classification System (1967), or they may be zones within other classes of parks. These designated reserves will be living museums, encompassing both unique and representative segments of our flora, fauna, geology and physiography. Nature reserves serve an important role in research and education when such use does not damage the values the reserve was established to protect.

To assist the Branch, there is an advisory committee to the Minister, consisting of experts in all fields of the natural sciences and representatives of naturalists in the public sector. This committee is an indication of the broad fields of interest and study which should be represented in a completed system of nature reserves. The committee is working with the Branch to establish such a system. They also concern themselves with recommending specific areas which should be established.

Teams of ecologists (totalling eight persons) spent the entire summer of 1970 in the field carrying out inventory surveys of Provincial Parks, Park Reserves, and some specific locations on the Niagara Escarpment. These ecological inventories provide a description of the environment which is used for master planning, for site planning, and for interpretive planning. Where very high natural values are discovered, a nature reserve may be established. Twenty-two different areas, varying in size from a few acres to many square miles, were surveyed.

A co-operative arrangement with the International Biological Programme was strengthened, and data indicating areas possibly suitable for nature reserves were exchanged. The programme concentrated on patented lands and Crown lands other than parks, park reserves and park proposals.

RECORD OF PARK USE AND PARK FACILITIES IN 100 PROVINCIAL PARKS

		Vis	itors	Cam	pers	Camping	Swin Bea
District and Park	Park Classification	1969	1970	1969	1970	Units	(FI
			FF2 704	22.706	AF F11	422	18
Rondeau	Natural Environment	506,257	553,794	32,706	45,511	433 165	10
Selkirk	Recreational Park	49,270	60,025	5,463 13,049	5,737 12,139	476	1
Turkey Point	Natural Environment	297,811	434,970 105,726	7,968	9,793	128	6
Wheatley	Recreational Park	79,588		7,900	9,/93		7
Iroquois Beach	Recreational Park	_	160,101			_	,
LAKE HURON Craigleith	Recreational Park	74,090	62,409	23,406	20,553	170	3
Cyprus Lake	Natural Environment	16,876	63,686	5,212	11,681	168	
Inverhuron	Natural Environment	122,071	165,881	25,855	22,522	324	2
Point Farms	Recreational Park	119,431	98,225	12,754	16,229	215	1
Sauble Falls	Recreational Park	142,113	143,515	20,614	17,376	146	-
LAKE SIMCOE	Neer carrottar t arr	,	,		,		
Bass Lake	Recreational Park	210,198	217,901	20,758	21,999	154	
Devil's Glen	Recreational Park	49,438	56,585	3,978	4,766	40	-
Earl Rowe	Recreational Park	351,768	366,789	40,231	53,682	595	2
Mara	Recreational Park	49,351	97,110	9,511	10,072	100	
Sibbald Point	Recreational Park	294,462	290,777	36,266	45,671	725	2
Six Mile Lake	Recreational Park	142,672	145,390	20,641	20,054	187	
Springwater	Recreational Park	67,386	76,311	<u> </u>		_	-
Wasaga Beach	Recreational Park	947,941	975,631		_		39
LINDSAY						400	4
Balsam Lake	Recreational Park	99,727	98,599	19,740	24,879	400	1
Darlington	Recreational Park	148,602	137,990	26,452	34,517	400	1
Emily	Recreational Park	109,336	138,904	16,417	18,353	274	1
Ferris	Recreational Park						-
Mark S. Burnham	Recreational Park	12,342	14,827	22.425	26.520	450	7
Presqu'ile	Natural Environment	276,791	412,952	33,425	36,529 18,516	450 130	/
Serpent Mounds	Natural Environment	148,323	198,490	18,491	10,516	130	
NORTH BAY Antoine	Recreational Park	8,885	3,570	769	692	30	
Finlayson Point	Recreational Park	57,293	56,873	8,222	9,385	135	
Marten River	Recreational Park	67,577	69,086	11,306	13,789	216	1
Samuel de Champlain	Natural Environment	53,938	27,953	10,026	11,019	224	1
PARRY SOUND				44.440	44.070	220	
Arrowhead	Recreational Park	62,046	81,923	11,149	14,279	330	2
Grundy Lake	Natural Environment	175,549	186,220	31,907	35,656	535	1.4
Killbear Point	Natural Environment	308,733	260,253	40,438	42,700	1,035	14
Mikisew	Recreational Park	54,610	64,537	8,568	10,166	300	1
Oastler Lake	Recreational Park	153,279	130,122	17,831	19,424	183 225	1
Restoule	Natural Environment	24,365	37,683	5,316 7,632	6,620	225 87	4
Sturgeon Bay	Recreational Park	34,822	74,791	7,622	7,682	0/	

Picnic Areas	Museums, Exhibit	Nature Hiking Trails	Boat Launch	Trailer Sanitary
(Acres)	Centres	(Miles)	Ramps	Stations
40 12 29 33 5	M 	14	2 1 1 1	X X X X
12 4 19.5 10 9.6	EX EX —	10 2 —	1 1 1	X X X X
18 6 40 21.5 130 15 63 262		3 2	<u>x</u> <u>x</u> <u>x</u> <u>x</u> <u>x</u> <u>x</u>	X X X X X
25 120 25 20 4 110 30	M — — — — — M EC	1	x x x — — x	X X X
13 4.5 20 15	 EC		X X X	X X X X
1 8 30 10 2 —		3.5 5 4.5 — — 1.5	X X X X X X	X X X X X

continued . . .

SNOWMOBILE TRAILS

Snowmobiling was permitted on roads or specially designated trails in many provincial parks during 1970-1. Approximately 200 miles of marked trails and 700 miles of roads were available for this activity.

Snowmobiles were prohibited from use in Long Point, Bass Lake, Mara, Springwater, McRae Point, Mark S. Burnham, North Beach, Sandbanks and Killbear Provincial Parks.

Snowmobiling was restricted to specially designated areas in Rondeau, Algonquin, Quetico, Lake Superior, Pinery, Earl Rowe, Sibbald Point, Darlington, Serpent Mounds, Emily, Balsam Lake, Presqu'ile, Outlet Beach, Bon Echo, Arrowhead, Samuel de Champlain, Killarney, Kakabeka Falls and Sibley Provincial Parks.

An additional 300 miles of cross-country trails were established on Crown lands in Parry Sound, Lindsay and Tweed Districts. A considerable increase in recreational snowmobiling was made of the County Forest areas which are under timber management Agreements with the Department of Lands and Forests.

ACCESS POINTS

During 1970, maintenance and improvements were carried out on a total of 618 public access points across the province. The increasing use being made of these sites required an expansion of parking and launching facilities in a number of areas. New development priorities were directed to providing access to major waterways and highly productive fishing waters.

CANOE ROUTES

The rapidly increasing demand for canoe routes information was met in large part by a new publication, "Canoe Routes in Northern Ontario". This booklet summarizes 125 historic canoe routes in northern Ontario and provides essential data and further sources of information on 11,000 miles of canoeing waterways. Detailed route descriptions and portage improvements were completed on approximately 5,000 miles of these routes.

HIKING TRAILS

Major emphasis was given to the planning of a co-ordinated system of hiking, equestrian and cross-country ski trails. Additional short trails were developed in Agreement Forest areas. Major projects included the completion of a 45-mile multi-use trail along the abandoned railway right-of-way from Parry Sound to Novar, and a scenic look-out trail at Aubrey Falls on the Mississagi River.

RECORD OF PARK USE AND PARK FACILITIES IN 100 PROVINCIAL PARKS

		Vis	itors	Can	npers	Camping	Swim Beau
District and Park	Park Classification	1969	1970	1969	1970	Units	(Fle
PEMBROKE Algonquin Carson Lake Driftwood Bonnechere	Natural Environment Recreational Park Recreational Park Recreational Park	658,785 5,642 9,431 8,399	679,295 6,083 9,242 10,888	93,991 5,158 6,418 5,690	107,207 5,685 6,722 4,754	1,233 45 95 115	3, 4, 1,
SAULT STE. MARIE Batchawana Mississagi Pancake Bay	Recreational Park Natural Environment Recreational Park	19,669 32,266 124,051	36,280 41,139 149,667	 3,949 28,959	— 5,291 34,302	— 112 278	8, 1, 10,
SIOUX LOOKOUT Ojibway Pakwash Sandbar	Recreational Park Recreational Park Recreational Park	6,927 4,272 —	5,474 9,369 4,332	1,828 1,376	2,919 2,233 4,195	64 60 48	9,
SUDBURY Chutes Fairbank Killarney Windy Lake	Recreational Park Recreational Park Natural Environment Recreational Park	58,819 70,048 58,065 73,483	78,149 92,780 70,321 89,148	16,008 11,025 5,307 6,390	20,053 14,340 7,559 5,179	92 132 135 76	1, 5,
SWASTIKA Esker Lakes Kap-Kig-Iwan	Natural Environment Natural Environment	27,147 30,411	29,725 28,127	4,336 4,163	4,457 4,612	136 64	1,
THUNDER BAY Inwood Kakabeka Falls Middle Falls Sibley	Recreational Park Natural Environment Recreational Park Natural Environment	61,767 274,715 15,895 55,135	76,390 263,598 39,504 81,787	14,822 32,742 4,443 17,136	17,515 36,205 6,075 16,792	82 119 30 200	1, - 2,
TWEED Black Lake Bon Echo Lake St. Peter Outlet Beach Sandbanks North Beach Lake on the Mountain	Recreational Park Natural Environment Recreational Park Natural Environment Natural Environment Recreational Park Recreational Park	61,495 138,991 26,675 315,761 58,299 68,332	70,317 168,414 21,833 338,401 99,184 81,524	12,988 25,665 6,867 28,304 1,643	13,814 27,335 4,315 32,239 2,077 —	200 400 60 482 —————	2, 1, 10, 26, 4,
WHITE RIVER Lake Superior Obatanga White Lake	Natural Environment Natural Environment Recreational Park	111,684 21,884 74,992	213,814 64,186 68,585	43,260 11,566 23,018	39,858 12,195 23,594	354 124 205	13, 1, 3,

One feature of children's interpretive program, Earl Rowe Provincial Park. Photo by B. Colvin.

Picnic Areas (Acres)	Museums, Exhibit Centres	Nature Hiking Trails (Miles)	Boat Launch Ramps	Trailer Sanitary Stations
7 1 1	M & EC 	27 — — —	X X X X	X X X
10 9 8	 			X X
7 5 6	 	1 — —	X X X	<u>X</u> <u>X</u>
10 12 2 100		1.1 1 7 —	_ _ 1 1	X X X
35 30	EC —	15 65	<u>X</u>	X X
2 32 6 25	 	$\frac{3^{1/2}}{-15^{1/2}}$		X X X X
10 35 90 200 980 60	EX	4 · · · · · · · · · · · · · · · · · · ·	3 3 2 4 — 1	X X X —
53.1 10 8	EC — —	1.3 1 ¹ / ₄	X X	X X X





Forest Protection Branch is divided into three sections with duties and responsibilities as follows.

FOREST PROTECTION

Forest Fire Control. Administration of The Forest Fires Prevention Act; organization of fire districts and the fire warden system; supervision of fire control planning and preparedness; fire prevention programs including a system of travel, fire and work permits; co-operative fire prevention and control agreements with municipalities, railways, forest industries and other agencies; detection of forest fires, and fire danger warnings; training of staff and co-operators in fire control techniques; prescribed burning; co-ordination of fire suppression; and movement of resources and emergency arrangements.

Forest Pest Control. Prevention and control of damage by insects, diseases and other pests affecting forests under Department management; and advisory services.

Communications. Planning, installation and operation of radio, telephone and teletype services for fire control and other Department requirements; and construction of specialized communication equipment.

AIR SERVICE

Operation of a fleet of aircraft to meet flying requirements of the Department and special needs of other Government Departments; selection and training of pilots and air engineers; deployment of aircraft and crews; establishment of airbases, fuel distribution and caches; selection of aircraft equipment and development of special equipment; leasing and disposition of helicopters and other aircraft; checking pilot proficiency; and maintenance of aircraft.

ENGINEERING SERVICES

Planning mechanical equipment programs, budgetting for new and replacement equipment, standards for operation and maintenance of mechanical equipment, and vehicle fleet management; design, construction and maintenance of dams, docks, and other hydraulic structures, channel improvement, and dredging; co-ordination and planning of capital work program and maintenance of facilities; and sign program.

FOREST FIRE CONTROL

For the decade 1961-70, forest fire occurrence averaged 1,450 per year while the average, annual acreage burned was 145,233. For the year 1970, 1,239 fires burned 56,160 acres of forest land. In terms of severity, i.e., burning conditions, 1970 was a moderate year.

The main fire activity came with high to extreme danger periods in June and August when 310 and 469 fires, respectively, accounted for approximately 98 per cent of the acreage burned. The majority of this acreage can be attributed to a series of lightning-caused fires in Sioux Lookout, Thunder Bay and Geraldton districts during June.

Thirty-three per cent of the 1970 fires originated from lightning. This is the highest percentage for this cause since 1961. Of the total acreage burned, 90 per cent resulted from lightning fires, a figure somewhat higher than normal. The statistics on man-caused fires are correspondingly lower than average, i.e., 836 fires or 67 per cent as compared to the norm of 80 per cent.

FOREST FIRE CONTROL OPERATIONS

Detection. The aerial detection systems in Kenora, Fort Frances, Geraldton, White River, North Bay, Parry Sound and Lindsay districts operated with good result.

Aerial systems employ aircraft as the basic means of detecting fires, and towers for providing supplemental coverage in high-risk, high-value areas. Systems of this type offer considerable flexibility in that coverage can be more effectively programmed in accordance with fire danger and risk over a broad area. Over the next one to three years, it is anticipated that further districts will begin to phase out their fixed-point tower systems and adopt aircraft as the primary detection platform.

Renewed emphasis is being placed on the public role in detecting and reporting forest fires. Over the years, the public sector has consistently given the initial report on 50 to 60 per cent of all fires. Planned effort in this area will bring further improvement to the over-all detection program.

Suppression. The basic suppression force was 138 five-manunit crews specially trained for fire control work. The crews were supported by 38 fire-bombing aircraft. This force took initial action on 913 fires.

Municipal groups, organized under the fire warden system, handled 134 fires. The general public provided the initial attack on 161 fires. Timber licensees took action on 21 fires.

Fire control problems were encountered during the peak occurrence period in early June. Weather conditions conducive to fire spread, coupled with accessibility problems to the lightning fires, contributed significantly to the difficulty of the fire suppression job.

One of the highlights of the 1970 season activities was a large-scale movement of trained unit crews, fire line supervisory staff and equipment from areas of low fire danger and occurrence to the active fire areas in the province. This was done in anticipation of worsening fire situations so that trained men were available for action in the areas requiring additional aid. This resulted in the most effective fire suppression effort possible under the adverse conditions.

Fire-bombing aircraft played an important role in the fire suppression activities. These aircraft provided the initial attack on 161 fires and were used in support of ground crews in numerous other cases. The quick response of the specialized aircraft to a fire report gives fire control personnel the capability, in many cases, of effectively holding a fire until ground crews can reach the scene.

FIRE CONTROL TRAINING

Fire Suppression Course I was presented to candidates from each of the three administrative regions by regional fire control instructors. A total of 64 Lands and Forests personnel successfully completed the course this year. Two representatives from the National Parks Service also completed the course. A grand total of 510 personnel have been graduated since 1962 when the course was first offered.

Fire Suppression Couse II, containing material on advanced fire behaviour, organization and management, was successfully completed by 24 senior supervisory personnel consisting primarily of Chief Rangers and Deputy Chief Rangers. A total of 57 people have been graduated from this course during the two years it has been given.

The fire simulator was used at Course II. Four programs were presented to the candidates to demonstrate the equipment and to reinforce some of the concepts presented throughout the course.

Staff participated in the organization and presentation of the National Seminar on Aircraft Management sponsored by the Associate Committee on Forest Fire Protection at Petawawa, Ontario, in October.

FIRE PREVENTION

Forest fire information was made available to the public in the Ontario-Quebec border regions through the facilities of the C.B.C. under an agreement between the governments of the provinces. Daily information on present and forecasted fire danger, location of large fires and their history, and any imposed restrictions were assembled at one location for distribution to the French and English television network stations in that area.

Fire prevention information was also provided through C.B.C. television stations in Winnipeg and Barrie.

Radio stations and the press were used to convey forest fire information to people on a local basis.

Legislation, establishing restricted fire zones, was enforced on a seasonal basis in the Wawa fume-damaged area of White River Forest District.

Restricted fire zones were established for the period, August 14-24, in parts of Sioux Lookout and Thunder Bay districts and all of Fort Frances and Geraldton districts. Sudbury and Chapleau districts were declared restricted fire zones from August 14 to 31, as was White River from August 14 to 17.

Restricted travel zones were declared in Ignace, Thunder Bay and Shebandowan Chief Ranger Divisions for the period, August 20-24. These measures were taken during a period of extreme fire danger conditions in an attempt to reduce the occurrence of man-caused fires.

The four-minute program on Lands and Forests activities, carried on the C.B.C. northern network, provided a medium to advise the public in northern Ontario of the provincial fire situation and the expected fire danger conditions.

DEVELOPMENT WORK

Land-Based Fire-Bombing Aircraft. A study was undertaken to assess the use of wheeled aircraft to deliver long-term fire retardants to fires as a means of initial attack. The long-term retardants had been previously tested and proven as a valuable aid in fire suppression.

A study area in northwestern Ontario was chosen, and operations research techniques were used to simulate the use of various types of land-based fire-bombing aircraft presently available to carry out the initial attack on fires in that area.

A prototype base was established at the Dryden Airport for the month of August. The purpose was to familiarize operating personnel with this concept in fire control. Long-term retardant was delivered to fires using a Canso, Avenger and A-26 type aircraft under the guidance of an air attack boss situated in a bird-dog aircraft which accompanies the air tankers on each mission.

This exercise proved that land-based air tankers, working from strategic locations, can be a valuable asset to fire suppression in Ontario.

Remote Sensing. An infra-red line scanner, specially designed for wildfire mapping, was mounted on a Turbo Beaver aircraft for the 1970 season. This equipment was the result of a project initiated in 1962. The Forest Protection Branch was vitally involved in the development of this equipment through the field testing of the various prototypes developed by Computing Devices of Canada.

The 1970 season provided the opportunity for the infrared scanner to demonstrate its ability to map forest fires through smoke and provide valuable information for suppression planning purposes. An in-cabin recorder provides an instant image of the fire, showing the actual fire edge and surrounding terrain detail.

A PhiTran automatic weather station was obtained late in the fire season. This equipment consists of a master or base station and up to ten satellite stations. The satellite station records weather data such as rainfall, relative humidity, windspeed and temperature, and relays it via single sideband radio to the master station in code. The master station

STATEMENT OF FIRE DAMAGE, 1970

Forest District	Merchantable Cu. ft.	Forest Losses \$	Immature Losses \$	Non Forest Losses \$	Total Losses \$
Sioux Lookout	36,833,480	1,155,009	383	1,206	1,156,598
Kenora	6,596	285	716	303	1,304
Fort Frances	92,295	3,539	1,155	1,735	6,429
Thunder Bay	17,045	908	1,390	2,144	4,442
Geraldton	7,635,632	149,770	8,950	11,722	170,442
White River	198,552	6,170	6,618	4,064	16,852
Cochrane	72,951	2,559	3,880	955	7,394
	49,168	1,621		755	2,376
Kapuskasing		1,021	_		
Chapleau			171	46	217
Swastika			250	208	458
Sault Ste. Marie			250	200	_
North Bay	<u> </u>	443	2,701	349	3,493
Sudbury	5,701	443	336	80	425
Parry Sound	264	9		00	,
Pembroke			40	4.466	40
Tweed	40,440	2,724	2,075	1,466	6,265
Lindsay	_	_	100	28	128
Kemptville	50	4	50		54
Lake Simcoe	_		_	_	_
Lake Huron	_	_		_	-
TOTALS	44,952,174	1,323,041	28,815	25,061	1,376,917



Forest protection equipment in storage, Thunder Bay Forest District. Photo by C. Van Gemerden.

translates the code for presentation on a teletype print-out. The information is sent automatically at preset times or can be obtained on demand. The range of the equipment is 80 to 150 miles. This type of equipment means that weather information, vital to fire control planning, can be obtained from areas that could not previously supply this data.

PRESCRIBED BURNING

Fifteen prescribed burns were carried out in 1970, covering an area of 6,700 acres. The prime purpose of all prescribed burns was to prepare cut-over land for reforestation.

FIRE DANGER MEASUREMENT

Fire danger measurement in Ontario was converted to the new Fire Weather Index System, developed by the Federal Department of Fisheries and Forestry. The new system is a more sensitive measure of fire danger than the previous system, responding quickly to wind and long-term drought.

GENERAL

Nozzle crew competitions were held on a regional basis in 1970. The purpose of these competitions is to maintain a high degree of proficiency in preparedness and fire line construction and to encourage a team spirit among the fire-fighters of the Department. The regional winners were:

Northwestern Region — Sioux Lookout Forest District
Northeastern Region — Sudbury Forest District
Southern Region — Parry Sound Forest District

FOREST FIRES BY DISTRICT, 1970

Forest District	Fires	Acres
Sioux Lookout	111	39,054
Kenora	100	93
Fort Frances	91	324
Thunder Bay	119	3,671
Geraldton	86	8,651
White River	41	745
Cochrane	30	780
Kapuskasing	48	803
Chapleau	21	47
Sault Ste. Marie	49	71
Sudbury	168	328
North Bay	46	129
Parry Sound	47	80
Pembroke	67	223
Tweed	117	1,091
Lindsay	42	19
Kemptville	12	10
Lake Simcoe	9	5
Lake Huron	2	1
Lake Erie	11	11
Swastika	33	35
TOTAL	1,239	56,160

FOREST FIRES BY MONTH, 1970

Month	Fires	Acres
April	110	798
May	164	1,164
June	310	52,313
July	142	146
August	469	1,656
September	29	47
October	11	2
November	4	34

FOREST FIRES BY SIZE, 1970

Size	Fires
.3 acre or less	645
.4 acre to 10 acres	508
10.1 acres to 100 acres	61
100.1 acres to 500 acres	11
500.1 acres and over	14

FOREST FIRES BY MEANS OF DETECTION, 1970

Means of Detection	Fires
Lands and Forests Fire Tower	210
Lands and Forests Aircraft	195
Commercial Aircraft	109
Private Aircraft	14
Lands and Forests Personnel	90
Other Provincial Government Personnel	23
Outside Agency Fire Tower	_
Other Public	598

FOREST PEST CONTROL

In 1970, the spruce budworm continued to dominate the insect and disease problems, not only in Ontario but throughout eastern Canada. In Ontario, infestations of the insect were prevalent in three broad areas — west of the lakehead, the northeast, and in the southeast.

In northwestern Ontario, as a result of the spraying projects in 1968 and 1969 in the Burchell-Shebandowan Lakes area, the budworm situation was relatively satisfactory in 1970. The new area of infestation around Northern Light Lake, mentioned in last year's report, was sprayed (see section on control), but preliminary results indicate a surviving population for 1971. In addition, a new area of infestation, causing considerable concern, was discovered late in the season along the international border in the southern part of the Fort Frances district. The full extent of this infestation could not be determined before the end of the field season.

Many of the separate infestations in northeastern Ontario coalesced into three principal areas. The infestation, centred on the northern part of the Chapleau district, enlarged to 6,500 square miles and extended as far west as Lake Superior Provincial Park; the Onaping infestation in the Sudbury district increased to 1,200 square miles; and the scattered infestations in the Swastika district increased to 450 square miles.

In southeastern Ontario, the total area of infestation increased from 1,200 square miles in 1969 to 2,500 square miles in 1970. The principal areas involved were the Ottawa Valley from about Stonecliffe to Ottawa, including eastern and south-central portions of Algonquin Provincial Park; east of Bancroft in the Tweed district; and in the northern part of the Lindsay district.

The jack-pine budworm, which had subsided in north-western Ontario in 1969, declined sharply in numbers in the Pembroke district in 1970. This sudden development lead to cancellation of a planned spraying project near Lake Traverse. However, high populations of the insect continued to damage jack-pine stands particularly in the vincinity of the French River from Lake Nipissing to Georgian Bay, and south along Georgian Bay into Harrison Township. High populations also occurred south of Illfed Lake in the Parry Sound district.

The only notable area of forest tent caterpillar activity was in the Fort Frances district where the insect continued to defoliate stands of poplar, west and north of the Town of Fort Frances, over an area of about 500 square miles.

The European pine sawfly did not add significantly to the main body of its range in southern Ontario, the eastern boundary being a line roughly from Midland to Kingston. The insect occurs also on Manitoulin Island, and on ornamental plantings in the cities of Sault Ste. Marie, North Bay and Ottawa.

The saddled prominent, an insect which only rarely occurs in outbreak proportions in Ontario, has been defoliating sugar maple woodlots in parts of the Lake Simcoe and Lake Huron districts since 1967. As predicted last year, the infestations showed a distinct decline in 1970, and the large infestation in the Parry Sound district collapsed. Infestations are expected to largely disappear by 1971.

Two insects, which infrequently occur in outbreak proportions, caused widespread defoliation of hardwoods across northern Ontario. The large aspen tortrix, a close relative of the spruce budworm, defoliated trembling aspen over a total area of about 20,000 square miles, principally throughout areas of northwestern Ontario. The birch skeletonizer browned white birch trees over a total area of at least 25,000 square miles at several locations from northwestern Ontario to the Ottawa Valley.

As noted in the 1969 report, the geographic range of the Dutch elm disease has largely stabilized, with only a small northern extension in the vicinity of the cities of Sault Ste. Marie and North Bay. Mortality of elms continued at an accelerated rate in the central part of southern Ontario.

The scleroderris canker of red and jack pines continued to cause some mortality of regeneration of these species in several areas of northern Ontario. The most significant losses are in young plantations. In 1970, the disease was found for the first time in the Thunder Bay nursery.

There were many additional insect and disease problems, but the foregoing are of greatest significance and interest to forestry.

CONTROL OPERATIONS

The total area sprayed in 1970 to control the spruce budworm amounted to almost 23,000 acres. In northwestern Ontario, the only area requiring spraying was in the general vicinity of Northern Light Lake — specifically, immediately to the south of the lake, at the east end of Granite Lake, and along the northern edge of Gunflint Lake — 11,000 acres in total. The 5,250 acres at Northern Light Lake and 2,250 acres at Granite Lake received two applications of the insecticide, fenitrothion, each application at 5.1 oz. per acre, and the 3,500 acres along Gunflint Lake received one application of 5.1 oz. per acre. The spraying was successful in arresting the infestation, but a sufficient number of insects survived to probably constitute a problem in 1971.

In northeastern Ontario, Ivanhoe Provincial Park and a portion of Missinaibi Provincial Park, both in the Chapleau district, were sprayed with the objective of keeping the trees green. Approximately 3,000 acres were sprayed at Ivanhoe, and 8,000 acres along the southern side of Missinaibi Lake, with one application of fenitrothion at 4.3 oz. per acre.

In southeastern Ontario, 800 acres of valuable white spruce plantations were sprayed in the Larose Forest to protect the trees against further damage, and if possible, to achieve control of the infestataion. The objective was reached despite an unexplained failure of the first attempt, making necessary a complete second spraying almost 10 days later. The final spraying was a 5.6 oz. of fenitrothion per acre, with the core area of 80 acres receiving two applications, each at the 5.6 oz. rate.

Operations to control the white pine weevil totalled 4,300 acres. In the Sault Ste. Marie district, 2,200 acres were sprayed by air using methoxychlor at 2.5 lbs. per acre. Weevil damage was reduced by almost 75 per cent. The remaining 2,100 acres, in the Kemptville, Tweed and Lake Simcoe districts, were treated by spraying with portable sprayers, and by hand-clipping and burning infested leading shoots.

Almost 5,000 acres of pine and spruce plantations were sprayed for control of sawflies, including the red-headed pine sawfly, the European pine sawfly, the jack-pine sawfly, and the yellow-headed spruce sawfly.

The Department continued to make a special effort, through field collections, to build up a supply of the virus used to control the European pine sawfly. To obtain widespread infection by the virus, most of this material is distributed free of charge to interested private plantation owners.

Almost 500 acres of sod-covered sites were treated at the time of tree planting for control of white grubs, and 900 acres of similar sites were treated for control of mice where these pests threatened the survival of young plantations.

The major tree-killing disease in the forests of Ontario is the white-pine blister rust. A substantial control program has been in progress for several years to protect the trees in specific areas managed for production of white pine. The disease is controlled by using the herbicide 2,4,5-T as a spot spray to kill the other plants (wild currants and gooseberries) necessary in the disease's life cycle. In 1970, approximately 4,000 acres of high-value young pine stands were protected against the rust in parts of the Sault Ste. Marie, Pembroke, Lindsay, Tweed and Kemptville districts.

The entrance of annosus root rot into southern Ontario plantations is prevented by the application of sodium nitrite solution to the freshly cut stumps during thinning operations. In 1970, about 1,500 acres were treated in this way.

COMMUNICATIONS

The change-over of the High Frequency Radio System to Single Sideband continued throughout 1970. A total of 26 additional aircraft SSB transceivers (100 watts output on 10 channels) were purchased and installed early in 1970 in all remaining Turbo Beavers lacking SSB facilities. Additionally, all 10 piston engine Otters were installed with the SSB equipment as well as VOR navigational equipment. The entire fleet of 40 aircraft is now SSB and VOR equipped and some have DME (Distance Measuring Equipment) Transponders and Radar.

A one kilowatt 8 channel SSB base station was put into service at Maple as a local control operation prior to it being remotely controlled from the Parliament Buildings Communication Centre in downtown Toronto 20 miles distant. Aside from the main transmit/receive facility, this system includes six individual stand-by receivers and a tone operated remote control console. Radio communication is provided to all field office points.

A large quantity of VHF walkie-talkie sets were supplied from the provincial fire-cache to the field offices, and the cache replenished by a purchase of 145 more.

Telex continues to carry the load of communications between Head Office and the field offices with 30 machines being operated in 1970. Due to the increased traffic load and number of multi-point messages, some manually operated machines were changed to perforated-tape automatic operation.

AIR SERVICE SECTION

The Section currently maintains a fleet of 40 aircraft, operated out of 24 bases, to meet flying requirements of the Department and special needs of other Government departments.

Five Bell 47G4 model helicopters were leased for varying periods during the year to provide transportation in forest fire fighting and other Department operations.

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS, 1970-1

2,743:40

		Commercial			
	Lands and Forests Aircraft	Fixed Wing	Helicopter (Contract)	Helicopter (Other)	Total
Detection	940:00	2,790:52	63:40	22:10	3,816:42
Suppression	1,136:50	1,133:55	606:40	403:15	3,280:40
Water Dropping		9:40	8:00	2:35	645:15
Pest Control	106:45	12:30	29:10		148:25
Transportation	1,069:25	228:00	157:30		1,454:55
Forest Protection, Total	3,878:00	4,174:57	865:00	428:00	9,345:57
Timber	1,470:25	99:00	219:40	113:35	1,902:40
Fish and Wildlife	3,940:00	571:17	661:15	136:30	5,309:02
Lands and Surveys	698:45	23:17	93:55	47:10	863:07
Parks	860:40	18:40	94:55	5:10	979:25
Research	325:35	_	54:35		380:10
Department Administration	2,743:40	107:20	375:05	_	3,226:05
Inter-departmental	1,829:50	130:00	119:40		2,079:30
Total	15,746:55	5,124:31	2,484:05	730:25	24,085:56
			Commercial		
	Lands and Forests	Fixed	Helicopter	Helicopter	
	Aircraft	Wing	(Contract)	(Other)	Total
Breakdown of Administration					
Ferrying	551:15		318:05		869:20
Pilot Training and Testing	410:20	_	12:35		422:55
Transportation	1,782:05	107:20	44:25		1,933:50

107:20

MERCY AND EMERGENCY

Total

FLIGHTS 1970-71		
	Number of Flights	Hours
Department Aircraft	60	99:25
Helicopter — Contact	5	21:35
Helicopter (Emergency Ambulance-		
Moosonee)		107:25
Total	65	228:25

Total flying time for the year accumulated on Department aircraft was 15,746:55 hours. The total number of passengers carried was 36,589, and the total load carried was 17,785,026 pounds.

375:05

Sixty-five mercy and emergency flights were carried out by aircraft and helicopters, as well as an emergency ambulance service at Moosonee during spring break-up and fall freeze-up. These flights accounted for a total of 228:25 hours.

During 1970-1, a new Beechcraft King Air 100 business machine was purchased to provide additional transportation requirements.

3,226:05

ENGINEERING SERVICES SECTION

Engineering support continued to be supplied to head office operating branches and districts in those aspects of departmental programs requiring professional engineering, application of engineering technology and construction expertise.

CAPITAL WORKS AND MAINTENANCE OF FACILITIES

Co-ordination and planning of the major capital works program of the Department was effected through liaison with the Department of Public Works, Treasury Board, and affected branches, districts and regions. The projects included renovations to the Chief Ranger Headquarters at Pembroke, a fish production and experimental hatchery near Bath, a tree nursery office and shipping shed at Thunder Bay, provision for new Air Services office accommodation at Sault Ste. Marie, a fish production sub-station at Chatsworth, warehouse facilities at Sioux Lookout and miscellaneous construction and building renovations.

Planning and budgetting for maintenance and minor construction of buildings and other facilities, under the minor capital works program, was carried out. District staff or tender procedures were utilized on projects other than essential services provided by the Department of Public Works. Projects, ranging from painting buildings, repairing boats, and tower cabins to construction of gasoline storage buildings, junior ranger camps and staff quarters, were funded.

MECHANICAL EQUIPMENT

Approximately 1,400 vehicles of all types are in use by the Department with an increase to some 1,700 for peak periods, as well as tractors, loaders, graders, motorized toboggans, off-the-road equipment, boats, outboard motors, fire pumps, etc.

A planned equipment program and an established policy with respect to repair of all mechanical equipment, acquisition and replacement, equipment markings and colour, licensing, insurance coverage, and bulk purchase have become a necessity and form an integral part of the Section's responsibility. In addition, minimum standards for operating condition and general appearance of motor vehicles and trailers continue to be established to ensure safe, efficient and dependable operation.

A vehicle fleet management program, implemented in

three districts as a pilot study in 1969 and designed to provide management and operating personnel with computer print-outs of information such as vehicle performance, frequency of repair, annual repair costs, and accident and replacement information, was completed and steps taken to implement the program province-wide by 1972.

The information is designed primarily to assist in forming an acquisition and replacement policy based on statistical information and should lead to reduced out-of-service time and operating failures. Utilization of such information will provide the capability to minimize operation and maintenance costs. It will provide a complete inventory and form an effective tool for establishing vehicle complement distribution.

SIGN PROGRAM

Co-ordination of the Department sign program, in accordance with policy established by the Sign Committee, continued. Type, quality, colour, symbols, production and erection specifications are being standardized to achieve public acceptance and to assist the Department in communicating with the public while on or travelling through Crown lands or lands administered by the Department. A sign manual, designed to assist in identifying and ordering standard signs, was undertaken and will be available for use in 1972.

WATER MANAGEMENT ENGINEERING

Of increasing importance and concern are engineering projects related directly or indirectly to water use and management. Projects undertaken include pre-engineering, design, construction and maintenance of dams, docks and navigation locks and other hydraulic structures or facilities as well as improvements to flow channels and dredging.

PRE-ENGINEERING SURVEY AND DESIGN

Pre-engineering surveys were undertaken in preparation for design and construction of all hydraulic structures, or to assist in determining feasibility or cost. Projects included dams, the hydraulic parts of hatcheries at Chatsworth, Sandfield, Hills Lake and Balsam Creek; shore erosion on Lake Erie; wildlife management areas at Aylmer, Wye Marsh, Tiny Marsh, Hullett Marsh and Nonquon Marsh; water supply; provincial fishing areas; a floating bog restraining device; aid to navigation by dredging and provision of boat rollerways and marine railways; lamprey control barriers; and docks, railway crossings and a number of other miscellaneous projects.

CONSTRUCTION

Construction staff completed the construction of water control dams located at Omemee, LeGrou Lake, White Lake, Southampton, Pine Lake, Pevensey Lake, Sheldrake Lake, Billings Lake, Tiny Marsh, and Dryden Nursery.

A water outlet control structure was built at Keewatin to prevent the uncontrolled discharge of waters from the west end of Portage Bay of Lake of the Woods. The structure will assist in determining total outflow from Lake of the Woods.

A program to save Marentette Beach from erosion and protect cottages and low-lying farm lands was completed with construction of erosion control structures along 5,000 feet of beach on the easterly shore of Point Pelee immediately north of Point Pelee National Park. Installation of gabion mattresses, headwalls and groynes, as well as timber groynes and headwalls, clay dykes and stone-filled timber cribs, was completed and a three-year study program launched to determine their effectiveness.

Other miscellaneous construction was completed, including a water storage pond at Midhurst Nursery, a sheet pile retaining wall at the Fisheries Research Station at Wheatley, a dock at Rondeau Provincial Park, and a lamprey control section in the Little French River.

Construction was commenced on an outlet for Farren Lake, and a water control dam at Mackenzie Lake, and an access road was completed to the site of the Whitewater Lake Dam, scheduled for construction in 1971.

MAINTENANCE

Maintenance of hydraulic structures and docks were scheduled on the basis of condition determined from inspection and reports submitted from districts. In addition to maintenance of docks at MacDiarmid, Severn Falls and Rondeau Provincial Park, routine maintenance was carried out on locks at Port Carling, Huntsville, and Magnetawan. Maintenance of dams at the following locations was carried out.

Watts Lake Kahshe Lake Finlayson Lake Port Sydney Huntsville Magnetawan Minnow Lake Ahmic Lake Knoephli Falls Wood Lake Bala (North dam) Baysville Naiscoot Lake

Oxford Mills Westport Lyndhurst Delta Birch Lake Tube Lake Manitou Lake Washagami Lake Nepawassi Lake Johnnie Lake Lyso Lake Minisinakwa Lake Penache Lake

North Milne Lake Marten River Turtle Lake Tilden Lake White River Denbigh Summit Lake Dwvers Marsh Skootamatta Lake Malcolm Lake Baptiste Lake Weslemkoon Lake Paudash Lake

Wakami River Chapleau Ivanhoe Lake Charlton Lake Gowganda Larder Lake Duncan Lake

Shirley Lake Ragged Lake Rock Lake Booth Lake Galeairy Lake Opeongo Lake Burnt Island Lake Kenogamisis Lake Lake Traverse

Bottle Creek Cordova Lake Salerno Lake Digby Lake Kasshabog Lake Round Lake Kinmount

IMPROVEMENTS TO FLOW CHANNELS

Improvements to flow channels, by clearing debris and floating bogs, and the dredging, widening and deepening of flow channels, was carried out to increase efficiency in discharging water from Department-owned dams, to improve flow between controlled waters, or to decrease downstream flooding resulting from the Department's operation of a dam.

This year, major improvements were undertaken on Bernard Creek, the waterway connecting Pike, Crosby and Little Crosby Lakes, and Skeleton River.

INSPECTION

Of the 250 Department owned and operated dams, approximately 15 per cent were inspected either as a result of requests or expressions of concern for the safety and protection of down-stream interests or as a matter of routine. Reports were prepared and recommendations made to either repair or proceed to construction at some future date in each instance.

FNGINEERING CONSULTATIONS

The Section provides engineering consultation for design, construction or reconstruction of Departmental facilities. Engineering studies and reports are provided by staff or by utilizing the services of consultants specializing in given areas.

Specialists in ground water supply, soil analysis, aerial surveying, hydraulics and erosion control were retained for specific projects. Of particular interest this year were two engineering reports — the first, an assessment of the flood damage in the Sault Ste. Marie-Sudbury area resulting from an intense storm which took place between May 30 and June 3rd, prepared by a staff member; and the second, a flood control study of the Onaping-Vermilion River watersheds prompted by severe flooding in the Municipality of Dowling as a result of the May 30-June 3rd storm. The latter study was undertaken by a consultant.

Feasibility studies were undertaken, and reports and costs estimates were prepared on matters related to equipment, water supply, and outdoor facilities for fish culture stations.



Lands and Surveys Branch is divided into three sections with duties and responsibilities as follows.

LANDS

Administration of public lands and their disposition by sale, patent, vesting order, quit claim deed, lease, licence of occupation, or land use permit; release of reservations in patents, assignments and cancellations; and reservation of lands for public and government uses.

LAND ACQUISITION AND PLANNING

Recommendations and applications for purchase of private lands for public uses; development and co-ordination of land use plans in all districts for the management of renewable natural resources; Recreational Land Inventory Sector of Canada Land Inventory; co-ordination of departmental A.R.D.A. projects; liaison with Department of Agriculture and Food in private lands and with other Departments on the socio-economic implications of land use objectives; and access roads.

Water Resources Management and approval of dams; licences of occupation for dams; flooding and diversions; issuance and servicing of Water Power Lease Agreements; engineering consultations; and feasibility studies, inspections, and reports.

SURVEYS

Examination, recording and custody of original plans and field notes of restoration of original Crown survey points, retracement and municipal surveys, and surveys of Crown lands for disposition; map compilation; authorization of geographical names; and distribution of maps, publications and copies of survey records.

Indians, collecting wild rice, Kenora Forest District.

LANDS SECTION

The principal function of the Section is the formation of departmental policies and objectives respecting the planning and disposition of public lands.

LAND TRANSACTIONS in Years ending March 31

	Land Use	Other	
	Permits	Transactions	Total
1971	7,218	3,630	10,848
1970	4,494	3,334	7,828
1969	4,930	3,140	8,070
1968	4,747	2,693	7,440
1967	4,555	2,756	7,311

The number of land transactions processed reached an alltime high during the year. The increase in the numbers of land use permits is of particular significance. There were increases in every category of permit issued. A portion of these increases resulted from the regularizing of a number of squatter occupations.

The demand for summer cottage lots has increased steadily since 1966. A review of the summer cottage lots patented over the last 20 years shows the following:

To Residents of Ontario	20,522 lots — 82.3 ⁰ / ₀
To Residents of Other Provinces	$819 \text{lots} - 3.3^{\circ}/_{\circ}$
To Residents of Other Countries	3,586 lots — 14.4º/o
Total	24,927
Average per year	1,246

All residential lots must be inspected and approved by the health authorities before being offered for disposal. This protects the health of the residents and of the environment. During the year, higher standards were adopted for residential lots which are not supplied with public water and sewage systems. All townsite lots and summer cottage lots which did not meet the revised standards were withdrawn from disposition. In March, 1971, all cottage lots were withdrawn from sale pending the development of the policy to lease.

The program for the development and operation of garbage disposal sites, serving the unorganized areas of the province, was continued and expanded. At the year's end, more than 400 disposal sites were being maintained. In cooperation with the local health units, a number of unsatisfactory sites have been closed. Strategically located and well maintained garbage dumps help to alleviate littering on public lands.

Two new restricted areas were set up to control and regulate improvements on land. One of these, in the Arm-

strong area, northwest of Lake Nipigon, will encourage orderly residential development within Armstrong townsite. The other area was set up to control residential development in an area abutting Quetico Provincial Park. There are now 17 restricted areas in the Province; they have a combined area of more than 3,000 square miles.

LAND ACQUISITION AND PLANNING SECTION

The Section was formed in 1963 to implement the program announced in the Speech from the Throne in the fall session of 1962. This program anticipated the expenditure of \$200 million over a twenty-year period for the purchase of land for recreation, wildlife management, parks, reforestation and other resource management uses. The Section is also concerned with an Ontario land inventory, special land-use studies, water management, and the administration of public forest roads.

LAND ACQUISITION UNIT

Since the program's inception until March 31, 1971, 449,599 acres of land have been acquired. During the 1970-1 fiscal year, 2,995 acres were purchased for the preservation of the Niagara Escarpment. In Rondeau and Algonquin Provincial Parks, a total of 14 leases were acquired in accord with the established policy of reverting these areas to a wilderness state for public rather than private use.

During the year, the Treasury Board approved the purchase of 10 projects of 16,411 acres, and Ontario Parks Integration Board approved another 32 proposals involving 3,561 acres.

LAND INVENTORY UNIT

The Unit continued to carry out an inventory of the lands of the Province for both national and provincial requirements.

The national phase is the joint Federal/Provincial Canada Land Inventory Program which covers the agricultural and marginal agricultural areas of the Province. These lands are described in terms of physiographic and biological features and evaluated for their capability to provide recreational experience, forest and wildlife crops. Field work for recreation, wildlife and forestry evaluations was completed on the Agreement area during the year.

The cartographic production has been maintained at a high level. The following represents a summary of the number of maps compiled and drafted.

(a)	Canada Land Inventory Sector	Map S	cale
		1:250,000	1:50,000
	Recreation	25	522
	Wildlife	28	538
	Forestry	31	_
(b)	Ontario Land Inventory		
	Sector	Map Scale	
		1:250,000	1:50,000
	Land Classification	26	_
	Forestry	26	
	Wildlife		400
	Recreation	1	_

ACCESS ROADS

During the year, maintenance was provided and improvements carried out on 300 forest access roads comprising some 3,000 miles. This is an increase of approximately 500 miles over the previous year. In addition, a considerable mileage of abandoned logging roads was repaired for moose management purposes.

As provided for under Part 1A of The Public Lands Act, 35 roads with a total of 555 miles are now designated as public forest roads for traffic control purposes.

Eight private forest roads, comprising 227 miles, are now under agreement with the Department for shared costs of maintenance. One of the most noteworthy of these is an interprovincial link which connects the towns of Cochrane, Ontario, and LaSarre, Quebec. This program, which provides for the public use of these private roads, will be expanded in the next fiscal year.

WATER MANAGEMENT UNIT

The Unit is responsible for the management of water resources through approval of dams under The Lakes and Rivers Improvement Act; setting the terms and conditions, and preparing water power lease agreements under The Water Powers Regulation Act; administration of licences of occupation for dams constructed principally for log driving purposes; and administration of the reconstruction of old dams. In addition, special engineering consultation services are provided in fisheries and waterfowl management projects.

There was a total of 41 approvals of sites and plans for dam construction. Three water power lease agreements were completed and issued; two of these were renewals of lease agreements which had expired, and one was for a new power development. There were no licences of occupation issued. The reconstruction of six dams was recommended.

A water control study of the lower French River was completed.

LAND USE STUDIES

The Canada-Ontario, Rideau-Trent-Severn Study, to which the Section contributed, was completed as was the land-use plan for the North Georgian Bay Recreational Reserve.

The "Lake Alert Project," a study to determine a methodology for measuring the capacity of various lakes for summer cottage use was also started. Planning the appropriate future development of the Lake Temagami area of North Bay District also began.

SURVEYS SECTION

ADMINISTRATIVE SERVICES

The main responsibilities of the Sub-section are the custody of survey records and the distribution of reproductions for use by government departments and sale to the public, and a similar distribution and sale of maps and publications produced by the Department and maps of the National Topographic Series produced by the Department of Energy, Mines and Resources, Ottawa.

During the past year, the facilities of the Sub-section have been expanded to include the sale and distribution of county and district maps produced by the Department of Highways.

An increase in the distribution of maps of the Provincial Topographic Series was due to the production of nine new sheets in the series and seven revised editions. Distribution of the Provincial Territorial Series and of miscellaneous maps also increased.

An increased distribution of the National Topographic Series was again experienced due to the number of new sheets in the 1:50,000 and 1:25,000 scales.

Enquiries for historical and genealogical information were received and dealt with.

There was a considerable increase in the number of plans and field notes of Crown subdivision and retracement surveys catalogued and filed in the survey record library.

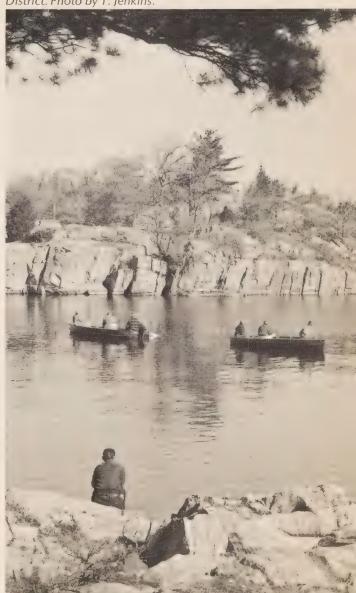
The demand for reproductions of plans, field notes and other survey records continued to increase.

CARTOGRAPHIC MAPPING

The program of mapping in the one-inch-to-two-miles Provincial Series continued with the production of nine additional maps and the revision of four existing maps in the series. The depicting of survey fabric and the extent of lands

alienated from the Crown on these maps (begun the previous year) was continued. The demand for maps showing this information was indicated by the increase in sales. The printing of each map had to be increased from 3,000 to 5,000 copies.

A favourite fishing spot below Burleigh Falls, Lindsay Forest District. Photo by T. Jenkins.



The following Provincial Series maps were produced in five colours: Gold Rock, Sand Point Lake, Wabigoon Lake, Metionga Lake, Rowan Lake, Pakashkan Lake, Press Lake, Gulliver River, Seine River, Batchawana (2nd edition), Ridout (2nd edition), Wakomata Lake (2nd edition), and Wenebegon Lake (2nd edition).

Ten special-use maps were produced at the request of other Branches, mainly for land-use study purposes, as follows: Map 24C — Islands in Lake Temagami, Trent-Severn River Area, Wolf Survey — Algonquin Provincial Park, Lake Temagami Study Area, North Bay Administrative District, Lake Alert Study, and fishing and hunting regulation map folders and questionnaires.

A review of the popular Map 21, "Southern Ontario," of the one-inch-to-eight-miles series, revealed that the many changes in highway and cultural development, and those involving municipal organization, had rendered the map obsolete. The compilation of information for the production of a new base is now under way.

The Ontario Map Catalogue, listing all maps produced by departments and commissions of the Ontario Government, was revised according to submissions from contributing sources; 750 copies were printed and distributed to universities, libraries, and provincial and national government agencies.

THE ONTARIO GEOGRAPHIC NAMES BOARD

The Ontario Geographic Names Board's prime function is to provide and maintain a systematic nomenclature for the populated places and the natural and artificial geographical features of Ontario. In so doing, it accords first consideration to local usage in settled areas, and to historical factors in uninhabited or wilderness areas.

In areas of sparse population having no historical record, commemorative naming is sometimes applied by the use of names of non-living persons—war casualties being one example. In situations where features have no known names, and where some form of provisional reference system is necessary for navigational, aeronautical, or survey purposes, an alphanumerical system of identification is being considered.

Pursuant to The Ontario Geographic Names Board Act of 1968, action was taken which resulted in the appointment of six persons to the Board.

As the original and ex officio member of the Board, as well as provincial representative on the Canadian Permanent Committee on Geographical Names (CPCGN) since 1962, the Surveyor General served in the capacity of OGNB and

CPCGN member in all decisions affecting the official naming of places and geographical features within the Province.

On July 20, 1970, an executive secretary was appointed to the Board as its second member. This was followed in November with the appointment of a secretary, bringing the staff to a total of three. The interviewing of persons, recommended for appointment to the Board, continued through the year.

In the summer months, a student was employed to update the name card index system by adding geographical co-ordinate data to the cards.

The annual meeting of the CPCGN was held on October 19, 1970, in Ottawa. The Surveyor General attended as member, and the executive secretary and assistant toponymist as observers.

During the year, a total of 109 maps and charts were examined with regard to geographical nomenclature and edited in terms of orthography, new names, rescinded names, and the accurate positioning of places or features designated. The following were revised.

Forester Lake, Kenora Forest District. Photo by T. Jenkins.



The Board examined a total of 2,904 place and geographical feature names submitted for approval or rescission during the year. In close co-operation with the Toponymy Division of the CPCGN, 821 names were approved, 71 names were rescinded, and 12 name applications were corrected with regard to positional references.

The up-dating of the name card file was continued throughout the year, and a total of 34 file card drawers were examined and revised. Particular attention was given to the revision of geographical co-ordinate information recorded in conjunction with each place and feature name.

In the previous system, locational information was based on, and integrated with, Ontario Forest Resources Inventory base maps and their quadrangle references. The OFRI reference is in the process of being replaced by more precise latitude and longitude data.

A total of 920 new cards, with names and cross-references locating and describing geographical features, were added to the geographic names file.

Several books in the OGNB collection and nearby Legislative Library were examined for historical and associated information which was transferred to cards. Over 50 new cards, incorporating names previously unrecorded, were processed.



More than 225 inquiries concerning geographical nomenclature were received from the general public and government departments.

DRAFTING SERVIÇES

The production of legal survey plans, resulting from departmental field survey activities, and the production of special-use maps, plans, charts and graphic illustrations, required by the operations of the Department, was continued by the Drafting Services Sub-section.

The production of township plans to a scale of one inch to a quarter of a mile, by the sub-section drafting staff, was again supplemented by an additional twenty-one such plans produced by commercial drafting firms under contract.

The location and extent of all new dispositions of Crown land were plotted on office plans. This continuing activity provides an up-to-date graphic inventory of land status throughout the Province.

The Sub-section compiled the land status information required for the preparation of the new, and revision of existing, one-inch-to-two-miles Provincial Series maps.

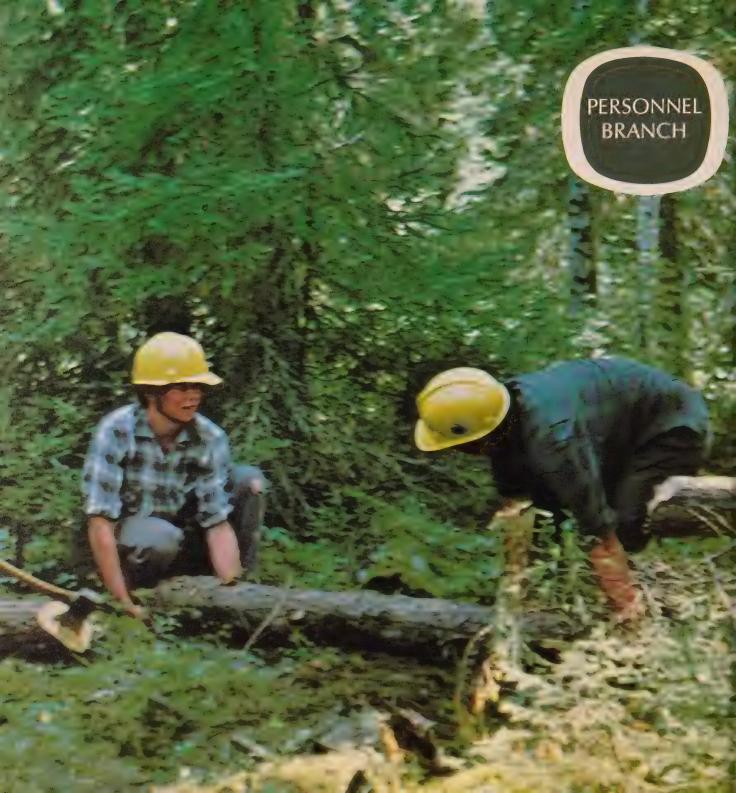
LEGAL SURVEYS EXAMINATION

Instructions for retracement, restoration, and subdivision surveys, to be performed both by Departmental surveyors and surveyors under contract, are prepared by this Subsection.

A responsibility of the Sub-section is the examination of compiled plans and plans of surveys required for the alienation of Crown lands to ensure compliance with departmental policy and statutes. These plans include those of individual cottage lots, commercial and industrial locations, water lots and Crown subdivisions.

Returns from surveys, performed under instructions such as restoration, retracement and municipal surveys not required for the alienation of Crown land, were examined for compliance with statutes and instructions.

Staff field surveyors, located at Tweed and Parry Sound, carried out surveys for administrative purposes. These included those required in the determination of encroachments on Crown lands and the resolution of problem situations resulting from ambiguous wording of former Crown grants, as well as inspection, park boundary and improvement, and other miscellaneous surveys.



Personnel Branch is divided into five sections with duties and responsibilities as follows.

- Staffing: Recruitment of staff, including Junior Forest Rangers; recruiting activities at universities and technical schools; job advertising; transfers and promotions; establishment and complement control; and assignment of qualified employees to positions.
- Classification and Job Evaluation: Ensuring that positions are properly classified and recommending the classification of positions; identifying and recording of organization and positions; ensuring that position specifications are produced; classifying positions under the Delegated Authority; and developing class series.
- Training: Co-ordinating and organizing Department training courses; arranging for employees to attend courses given by outside agencies; liaison with Ontario Forest Technical School and Educational Leave Committee; analyzing Department training needs; evaluating courses; and special assignments.
- Employee Relations: Counselling of employees; improvement of communications between field and head office staffs; investigations of problems relating to personnel; liaison with Staff Relations Branch, Treasury Board and Civil Service Association of Ontario; and maintaining Department program on alcoholism.
- Office Management: Documentation of personnel records; attendance reports and leaves of absence recommendations; processing nominations to staff; transfers; separations; group insurance, major medical, and long term income protection plan applications and changes; merit increases; accelerated increases; salary revisions; maintaining personal files for regular and probationary staff; and providing statistical information to other Branches on request.

Junior Forest Rangers at work, Obatanga Provincial Park.

STAFFING

To provide the field and Head Office organizations with qualified professional and technical staff, the campus program was continued, but restricted to local universities and community colleges where graduate forestry technicians were available. Newspaper advertising was used to cover specialized positions not normally handled by the campus program.

The Junior Forest Ranger Program continued to be attractive to 17-year-olds, and the total was increased to 1,860 boys, placed in 77 camps throughout the Province.

CLASSIFICATION

A review of positions on a three-year basis continued with an audit of work units to ensure validity and consistency in the application of the classification system.

The Resource Technician and Resource Technician Senior Series were approved by the Department of Civil Service and established, effective October 1, 1970. A large number of employees benefitted financially by the introduction of this series, and more accurate classification of positions was made possible.

TRAINING

During 1970-71, training in the technical areas of the Department's work continued, through certificate courses such as lands, timber management, fish and wildlife, etc.

In addition, management development courses, designed to cultivate and sharpen managerial skills, were made available.

Some merging of technical and managerial content in courses took place, for example in "Fire Suppression Course II."

Increased emphasis was given to the consultative role of the Training and Development function.

EMPLOYEE RELATIONS

Another annual agreement was reached on hours of work for pilots and air engineers during the operating season. Effective communication was maintained with the Staff Relations Branch and the Civil Service Association of Ontario.

Hon. Rene Brunelle chats with exhibit staff at Canadian National Sportsmen's Show, March, 1971. Photo by B. Colvin.



The review of existing personnel circulars was continued, and some revised circulars were issued. It is intended that the circulars will become a manual for personnel administration.

The objective of clear dialogue internally at Head Office, and between the field and Head Office, was pursued, and conditions were improved.

The program of assisting the problem employee was maintained and included aspects such as financial and emotional as well as alcoholic. The role of the supervisor was stressed at all meetings. The results of this program cannot be assessed on a short-term basis, but there are indications which support the continuation of such an endeavour.

OFFICE MANAGEMENT

The introduction of a Long Term Income Protection Plan for Ontario Government employees resulted in voluntary enrolment of approximately 75 per cent of the employees on staff. Effective March 1, 1971, the Plan was compulsory for all new employees.

A team, comprised of members from the Systems and Procedures Section of Financial Management Branch and the Office Management Section, was formed to study Personnel Branch systems. The program was introduced to investigate the processing of information and determine management information requirements, with the objective of providing an improved Personnel Records System, and Management Information System for Personnel Branch, which would be compatible with other systems being designed for the Department, Department of Civil Service, etc.

DISPOSITION OF PERSONNEL

Disposition of senior administration staff, March 31, 1971

Deputy Minister: G. H. U. Bayly.

Assistant Deputy Minister: R. D. K. Acheson.

Regional Directors: J. W. Giles, Southern; J. W. Lockwood, Northeastern; and L. Ringham, Northwestern.

Branch Chiefs: R. R. MacBean, Accounts; Dr. C. H. D. Clarke, Fish and Wildlife; W. T. Foster, Forest Protection; R. G. Code, Lands and Surveys; G. H. Ferguson, Law; G. A. Hamilton, Operations; P. Addison, Parks; J. M. Taylor, Personnel; Dr. W. R. Henson, Research; and A. J. Herridge, Timber.

District Foresters: G. P. Elliott, Chapleau; R. J. Burgar, Coch-

rane; R. A. Balkwill, Fort Frances; D. E. Gage, Geraldton; D. A. Fawcett, Kapuskasing; R. M. Christie, Kemptville; K. K. Irizawa, Kenora; W. B. Clarke, Lake Erie; J. M. Halpenny, Lake Huron; F. E. Sider, Lake Simcoe; A. E. Walroth, Lindsay; W. L. Sleeman, North Bay; J. S. Ball, Parry Sound; T. W. Hueston, Pembroke; W. D. Tieman, Sault Ste. Marie; F. L. Hall, Sioux Lookout; G. A. McCormack, Sudbury; S. R. Hamilton, Swastika; R. A. Baxter, Thunder Bay; A. H. Peacock, Tweed; and J. R. Oatway, White River.

Director, Ontario Forest Technical School: R. W. Hummel.

TOTAL STAFF, MARCH 31, 1971

	Regular	Proba- tionary	Unclassi- fied	Total
Head Office	774	122	181	1,077
Field	2,045	286	1,325	3,656
Total	2,819	408	1,506	4,733
Total, March 31, 1970	2,762	310	877	3,949
Total, March 31, 1969	2,486	485	904	3,875
Total, March 31, 1968	2,304	490	966	3,760
Total complement of re	~			3,336
Total regular and probation March 31, 1971	onary sta	ff,		3,227
Total vacancies in comple March 31, 1971				109



A forester speaks to children at a forestry field day in Lindsay Forest District. Photo by C. Van Gemerden.

NEW EMPLOYEES HIRED, 1970-1

	Male	Female	Total
Head Office			
Total	268	112	380

PROFESSIONAL EMPLOYEES, MARCH 31, 1971

Foresters	257
Biologists	88
Engineers	11
Miscellaneous	50
Total	406
Employees Holding Forestry Technician Diplomas	
March 31, 1971	1,103
Licensed Scalers, March 31, 1971	962

*STAFF TURNOVER, 1970-1

	Resigned	Dismissed	Retired	Deceased	Super- annuated	Inter-Dept. Transfers	Misc.	Total
Head Office Field	42 66	3 4	9 14	1 9	12 25	15 8	6 11	88 137
Total	108	7	23	10	37	23	17	225

^{*}Staff turnover during the fiscal year was 6.97 per cent, the ratio of separations to the total of regular and probationary staff at March 31, 1971.



Accounts Branch is divided into units with duties and responsibilities as follows.

- Accounting: Supervision of accounting for entire Department; preparation of claims under Federal-Provincial agreements; compilation of costing reports; procedural control and safe keeping of assets; and financial liaison with Treasury Board, Provincial Auditor, and other Government Departments and agencies.
- Revenue: Collection of revenue; maintenance of accounts receivable; supervision of accountable warrant funds; control of collateral securities; and issue of angling and hunting licences and park permits.
- Expenditure: Preparation of payrolls; internal check and payment of accounts payable; processing of refunds; and preparation of data for Public Accounts.
- Budget Preparation and Control: Compilation of esti-

mates and forecasts; and expenditure reporting and control.

- Finance and Cost Analyses: Financial evaluation of plans; and preparation of statistical and financial reports.
- Accounting Systems and Procedures: Development of accounting systems; preparation of accounting procedural manuals; and development of costing systems.
- Land Tax Administration: Administration of Provincial Land Tax Act; and assessments and appeals.
- Internal Audit: Review and appraisal of accounting, financial and operational controls.
- Systems and Procedures: Provision of systems improvement program for entire Department.
- General: Data processing; and addressograph and mail services.

FINANCIAL REPORT COMPARISON OF RECEIPTS AND DISBURSEMENTS WITH THOSE OF THE PREVIOUS TWO YEARS

(a) RECEIPTS (Branch)								
	1969 \$	1970 \$	1971 \$					
Provincial Land Tax .	1,754,617	2,033,837	1,932,379					
Forest Protection	128,821	155,495	119,911					
Timber	18,657,238	20,554,132	21,411,838					
Lands and Surveys	1,952,266	2,389,615	2,260,366					
Fish and Wildlife	8,691,389	11,146,218	10,649,349					
Parks	2,413,613	3,082,227	3,115,121					
Other	181,460	157,161	175,600					
Total Receipts	33,779,404	39,518,685	39,664,564					

(b) DISBURSEMENTS

1969 1970 1971

\$ \$ \$

General Expenditure 58,719,539 61,452,670 71,501,137

STATEMENT OF RECEIF

For Year En

RECEIPTS

MAIN OFFICE Provincial Land Tax	\$ 1,932,379.12 175,600.01	\$ 2,107,979.13
FOREST PROTECTION BRANCH Forest Protection Section Recovery of Fire Fighting Costs and Miscellaneous Air Service—Flying Fees	\$ 54,589.15 65,321.33	119,910.48
TIMBER BRANCH Timber Section Stumpage Charges \$18,325,410.49 Management and Fire Protection Charges 2,527,948.10 Agreement Forests 61,879.95 Logging Roads—Recovery of Construction Costs (Fixed Assets) Miscellaneous 58,193.49	\$21,200,305.25	
Reforestation Section Sale of Nursery Stock	180,678.19 30,854.71	21,411,838.15
LANDS AND SURVEYS BRANCH Lands Section Land Sales (Fixed Assets) \$ 1,088,146.96 Summer Resort Roads (Recovery of Construction Costs) (Fixed Assets) 100,820.85 Land Rentals, Leases and Licences of Occupation 464,482.62 Perquisites—Rentals 200,817.84 Miscellaneous 40,841.96	\$ 1,895,110.23	
Park Rentals, Leases and Licences of Occupation Algonquin \$ 12,937.69 Rondeau \$ 12,527.28 Long Point Park \$ 340.00 Sundry Parks \$ 1,304.70	27,109.67	
Surveys Section Recovery of Survey Fees	309,600.00	
Government of Canada—Agriculture Rehabilitation and Development Project Costs (Prior Years Expenditure)	28,546.05	2,260,365.95
FISH AND WILDLIFE BRANCH Licenses, Royalties and Sundry	\$10,649,349.46 193,241.00	10,842,590.46
Carried Forward		\$36,742,684.17

ch 31st, 1971

DISBURSEMENTS

DEPARTMENTAL ADMINISTRATION Minister's Salary—Statutory	\$, 15,000.00	
Salaries \$ 2,545,477.10 Travelling Expenses 79,053.98	Ψ) 13,000.00	
Maintenance and Operating	3,890,535.79	
Damages and Claims Advisory Committee to Minister Grant to Canadian Council of Resource Ministers Unemployment Insurance Charges for Data Processing Services Workmen's Compensation Board Grant to Ontario Forestry Association Training and Development	5,612.02 3,266.34 34,776.00 135,650.71 122,273.14 243,475.12 12,500.00 1,537,746.87	\$ 6,000,835.99
RESOURCE PROTECTION AND DEVELOPMENT PROGRAM		
Program Administration Salaries Travelling Expenses Maintenance and Operating	\$ 2,770,487.67 139,571.28 650,764.24	3,560,823.19
Forest Protection Activity Salaries \$8,255,764.29 Travelling Expenses 145,784.18 Maintenance and Operating 3,645,521.06	\$12,047,069.53	
Extra Fire Fighting Wages, etc., Maintenance and Operating	1,474,936.07	
Maintenance of Locks, Bridges, Dams, Docks and Dredging	119,813.86 972,019.13	
Less—Reimbursements of Expenditures—Government of Canada—	\$14,613,838.59	
Dam Construction Project Costs	48,225.00	14,565,613.59
Timber Activity \$10,131,347.00 Salaries \$10,131,347.00 Travelling Expenses 348,665.67 Maintenance and Operating 4,253,895.80	\$14,733,908.47	
Grants to Municipalities and Conservation Authorities	164,142.89 1,457,597.37	
Less—Reimbursement of Expenditures—Government of Canada—	\$16,355,648.73	
Agriculture Rehabilitation and Development Project Costs	357,330.63	15,998,318.10
Carried Forward		\$40,125,590.87

RECEIPTS (Continued)

DADIC DDAALCH	Brought Forward	\$36,742,684.17
PARKS BRANCH Park Concessions—Rentals	\$ 157,411.87	
Vehicle \$ 665,467.00 Campsite 2,258,079.00	2,923,546.00	
Licenses—Guide Ski-Tow Fees Miscellaneous	6,150.00 5,965.00 9,624.94	
Government of Canada—Agriculture Rehabilitation and Development Project Costs (Prior Year's Expenditure) (Fixed Assets)	12,423.12	3,115,120.93
REIMBURSEMENTS OF EXPENDITURES Government of Canada		
Agriculture Rehabilitation and Development Project Costs Resources Development Project Costs Fisheries Industrial Development Project Costs	\$ 738,418.38 125,245.00 17,951.72	
Dam Construction Project Costs	48,225.00	929,840.10
GROSS RECEIPTS		\$40,787,645.20 929,840.10
NET RECEIPTS Excess of Disbursements Over Receipts		\$39,857,805.10 31,643,332.70

DISBURSEMENTS (Continued)

DISDONSE[VIE] (15 (continues)		
Lands Activity	Brought Forward	\$40,125,590.87
Salaries		
Travelling Expenses	\$ 2,851,581.57	
Grant—Association of Ontario Land Surveyors	200.00	
Land Surveys	855,162.37	
Storage Dams—Control and Maintenance	3,327.71	
Annuities and Bonuses to Indians	42,504.00	
Construction of Summer Resort Access Roads (See Receipts)	196,777.69	
Maintenance Forest Access Roads	1,502,130.24	
Less—Reimbursements of Expenditures—Government of Canada—	\$ 5,451,683.58	
Agriculture Rehabilitation and Development Project Costs	283,158.50	5,168,525.08
Research Activity	A 1 707 000 71	
Salaries	\$ 1,507,339.71	
Travelling Expenses	66,961.52 354,323.62	1,928,624.85
·	334,323.02	1,320,024.03
RECREATION PROGRAM Program Administration		
Salaries	\$ 1,279,070.71	
Travelling Expenses	68,400.75	
Maintenance and Operating	416,354.30	1,763,825.76
Fish and Wildlife Activity	Re-la-	
Salaries		
Travelling Expenses		
Maintenance and Operating	\$ 6,719,829.47	
Grants—		
Jack Miner Migratory Bird Foundation Inc. \$3,000.00		
Ontario Waterfowl Research Foundation 5,000.00 Ontario Fur Breeders' Association Inc. 5,000.00		
Ontario Council of Commercial Fishermen	18,000.00	
Payments of Wolf Bounty	68,014.00	
	\$ 6,805,843.47	
Less—Reimbursements of Expenditures—Government of Canada— Resources Development Project Costs	\$ 0,005,045.47	
Fisheries Industrial Development Project Costs	143,196.72	6,662,646.75
Parks Activity		0,002,010110
Salaries		
Travelling Expenses		
Maintenance and Operating	\$ 6,334,294.17	
Acquisition and Development of Land	9,183,323.83	
Less—Reimbursements of Expenditures—Government of Canada—	\$15,517,618.00	
Agriculture Rehabilitation and Development Project Costs	97,929.25	15,419,688.75
Statutory		
Loans to Commercial Fishermen (See Receipts)	\$ 386,482.00	422.00= =
Loans to Fishing Camp Operators	45,753.74	432,235.74
Total Net Expenditure		\$71,501,137.80

TOTAL EXPENDITURE ALLOCA

For the Yea

Programs	Vote Total \$	Activity Total \$	Sub-Activi Total \$
DEPARTMENTAL ADMINISTRATION	6,000,835.99		
(Pro-rated by Operating Activities)			
Main Office		338,914.09	338,914.
Accounts		1,628,043.35	1,628,043.
Legal Services		196,531.45	196,531.
Administrative Services		1,473,126.16	1,473,126. 573,946.
Personnel		573,946.93 482,282.42	482,282.
Information and Education		1,307,991.59	1,307,991.
Junior Rangers	6,000,835.99	6,000,835.99	6,000,835.
	0,000,033.33	0,000,033.33	0,000,033
RESOURCES PROTECTION AND DEVELOPMENT	41,910,618.94		
Program Administration (Pro-rated by Activities)		3,560,823.19	3,560,823.
Forest Protection		14,613,838.59	
Protection Services			7,770,135.
Communication Service			455,871.
Plant Maintenance			1,052,656.
Stock Control and Repair			786,025. 1,982,380.
Air Service Extra Fire Fighting			1,474,936
Maintenance of Locks, Bridges, Dams, Docks and Dredging			119,813.
Construction of Dams, Docks, Locks, and Improvement			115,015.
to Flow Channels			972,019.
Timber		16,355,648.73	,
Timber Service		10,555,010.75	14,733,908
Grants—Municipalities and Conservation Authorities			164,142.
Construction of Logging and Forest Access Roads			1,457,597.
Lands		5,451,683.58	
Lands Service		0,.0.,,	2,561,441.
Lands Surveys			855,162.
Storage Dam's—Control and Maintenance			3,327
Maintenance—Forest Access Roads			1,502,130
Annuities and Bonuses to Indians			42,504
Construction of Summer Resort Roads			196,777
Canada Land Inventory			290,340.
Research		1,928,624.85	1,928,624
	41,910,618.94	41,910,618.94	41,910,618

MAIN ACTIVITIES

31st, 1971

Forest Protection \$	Timber \$	Lands \$	Fish & Wildlife \$	Parks \$	Less Reimbursements of Expenditures (Federal Contributions)
60,326.70	106,961.29	26,943.67	61,512.91	83,169.52	
289,791.72	513,810.48	129,429.45	295,489.86	399,521.84	
34,982.60	62,025.33	15,624.25	35,670.46	48,228.81	
262,216.46	464,918.62	117,113.53	267,372.40	361,505.15	
102,162.55	181,137.65	45,628.78	104,171.37	140,846.58	
85,846.27	152,208.33	38,341.45	87,534.26	118,352.11	
132,193.20	400,064.57	122,963.79	44,258.76	608,511.27	
967,519.50	1,881,126.27	496,044.92	896,010.02	1,760,135.28	
1 012 410 20	1 750 046 66	420 405 59	275 (07 74	72.252.06	
1,013,410.28	1,759,046.66	439,405.58	275,607.71	73,352.96	
7,770,135.73	152,716.85	33,688.88	83,606.77	92,541.85	
93,316.83	352,640.00	77,791.39	193,057.27	213,689.34	
215,478.86	263,318.62	58,087.30	144 ,157.12	159,563.22	
160,899.47	263,118.25	123,752.72	714,510.45	149,660.20	
731,338.41					
1,474,936.07					
18,067.93	4,588.87	66,999.91	28,443.81	1,713.34	
146,553.13	37,259.00	543,484.00	230,799.00	13,924.00	48,225.00
	14,733,908.47				357,330.63
	164,142.89				,
69,921.81	1,194,235.27	136,610.37	39,644.95	17,184.97	
		2,561,441.36			
17,452.15	52,356.46	610,830.51	174,523.25	132,411.33	
17,132.13	52,330.10	3,327.71	17 1,323.23	132,111.33	
190,984.75	793,178.95	197,200.96	188,354.25		
	, , , , , , ,	42,504.00			
		196,777.69			
	197,360.61	20,231.62	72,747.98		283,158.50
25,247.96	734,471.31	59,888.69	1,098,918.46	10,098.43	
1,927,743.38	20,702,342.21	5,172,022.69	3,244,371.02	864,139.64	688,714.13

TOTAL EXPENDITURE ALLOCA

For the Yea

Programs	Vote Total \$	Activity Total	Sub-Activit Total \$
RECREATION	24,087,287.23		
Program Administration (Pro-rated by Activities)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1,763,825.76	1,763,825.
Fish and Wildlife		6,805,843.47	
Fish and Wildlife Services			6,719,829.
Grants			18,000.
Payments of Wolf Bounty		15,517,618.00	68,014.
Parks Service		13,317,010.00	6,334,294.
Acquisition and Development of Land			9,183,323.
	24,087,287.23	24,087,287.23	24,087,287.

STATUTORY Loans to Commercial Fishermen Loans to Fishing Camp Operators	432,235.74	386,482.00 45,753.74	386,482 45,753
	432,235.74	432,235.74	432,235
TOTAL GROSS EXPENDITURE Less—Reimbursements of Expenditures	72,430,977.90 929,840.10	72,430,977.90 929,840.10	72,430,977 929,840
TOTAL NET EXPENDITURE	71,501,137.80	71,501,137.80	71,501,137

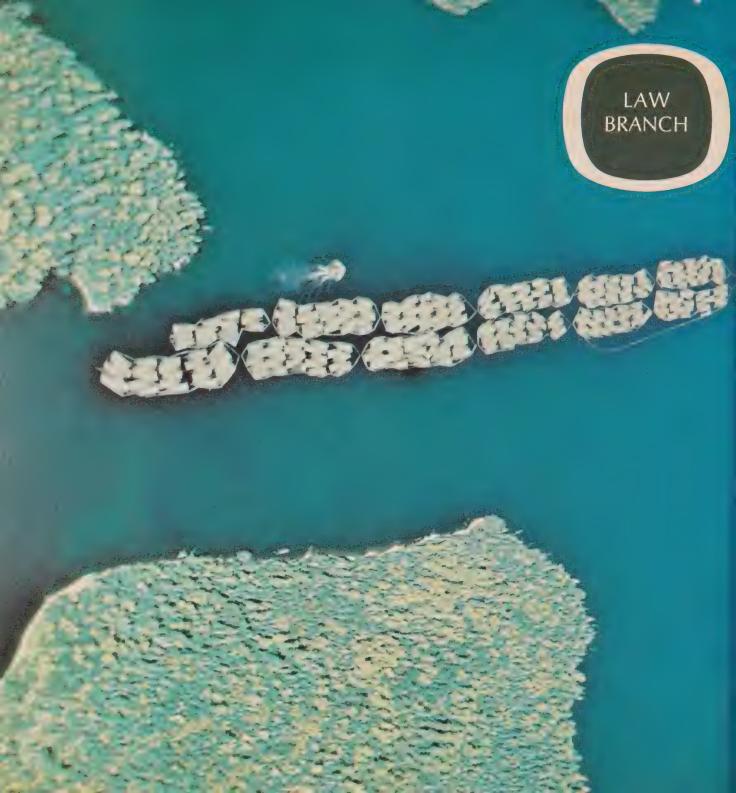
Percentage of Total

MAIN ACTIVITIES (Continued)

31st, 1971

Forest Protection \$	Timber \$	Lands \$	Fish & Wildlife \$	Parks \$	Less Reimbursements of Expenditures (Federal Contributions) \$
	20,107.62	6,702.54	627,569.20	1,109,446.40	
			6,719,829.47 18,000.00 68,014.00		143,196.72
	256,512.57	82,600.06	1,136,959.60	6,334,294.17 7,707,251.60	97,929.25
	276,620.19	89,302.60	8,570,372.27	15,150,992.17	241,125.97

			386,482.00 45,753.74		
			432,235.74		
12,895,262.88	22,860,088.67 618,403.36	5,757,370.21 20,000.00	13,142,989.05 263,564.96	17,775,267.09 27,871.78	929,840.10
12,895,262.88	22,241,685.31	5,737,370.21	12,879,424.09	17,747,395.31	
18.04º/o	31.11%	8.020/0	18.01º/o	24.820/0	



The duties and responsibilties of Law Branch may be summarized as follows.

- *Policy:* Establishing and reviewing Department policy with respect to legislation, regulations or administration; and integrating Department policies into those of the Government.
- Interpretation of statutes and regulations.
- Advice to branches and field offices on the legal position of the Department in all matters affecting it.
- Preparation and Processing of agreements; briefs, opinions and memoranda on special subjects; leases; legislation; licences; office consolidations of statutes and regulations; pleadings; recommendations to Council; and regulations under the various statutes administered by the Department.
- Services (miscellaneous): Collection of bad accounts; conducting litigation; conveyancing; representing the Department as Counsel in Provincial Land Tax Appeals and other hearings; settlements of claims and disputes; and title searching.
- Liaison with federal officials on matters concerning fisheries; federal canal systems, harbours and lands; and Indian reserves and rights of Indians, particularly regarding hunting and fishing.
- Patents Office: Maintenance of records of Crown land and transactions respecting, and legal dispositions of Crown lands; advising the public on records; compilation of statistics; and preparation and engrossing of documents disposing of Crown land including leases, letters patent and licences of occupation.

LEGISLATION

At the part of the Session of the Legislature that commenced on the 6th day of October, 1970, and prorogued on the 13th day of November, 1970, three statutes administered by the Department were amended.

THE FORESTRY AMENDMENT ACT, 1970

Section 1 of The Forestry Act was amended by adding a new clause ab defining "municipality" so as to include a district and a regional municipality.

This Act came into force on November 13, 1970, and appears in the 1970 annual statutes as Chapter 114.

Aerial view of log booms, towed by tug, Sioux Lookout Forest District

THE PROVINCIAL LAND TAX AMENDMENT ACT, 1970

Paragraph 10 of subsection 1 of section 3 of the Act was amended to remove the liability to taxation of machinery used for producing power for sale.

Subsection 1 of said section 3 of the Act was further amended by adding a new paragraph 16 exempting from taxation community centres in territory without municipal organization which have received grants under The Community Centres Act.

This Act came into force on January 1, 1970, and appears in the 1970 annual statutes as Chapter 116.

THE TREES AMENDMENT ACT, 1970

Section 1 of The Trees Act was amended by adding a new clause a defining the term "county" so as to include a district and a regional municipality and a new clause b defining "forestry purposes."

This Act came into force on November 13, 1970, and appears in the 1970 annual statutes as Chapter 115.

At the part of the Session of the Legislature that commenced on the 30th day of March, 1971, and adjourned on the 28th day of July, 1971, one statute administered by the Department was enacted and amendments were made to seven other statutes administered by the Department.

THE ENDANGERED SPECIES ACT, 1971

The purpose of this new Act is to provide a programme for the conservation, protection and propagation of species of wildlife and plants that are threatened with extinction and to protect the habitat of such species.

Section 1 of the Act defines "Minister" as the Minister of Lands and Forests and "officer" as a Conservation Officer or Deputy Conservation Officer and includes a member of the Royal Canadian Mounted Police Force or the Ontario Provincial Police Force.

Section 2 places the administration of the Act under the control of the Minister of Lands and Forests.

Section 3 authorizes the Lieutenant Governor in Council to make regulations declaring any species of fauna or flora to be threatened with extinction.

Section 4 provides that an officer has the powers and duties of an officer under The Game and Fish Act, 1961-62.

Section 5 creates an offence for wilfully killing or destroying a species of fauna or flora declared to be threatened with extinction.

Section 6 imposes a penalty on summary conviction for contravention of the Act of a fine of not more than \$3,000. or imprisonment for not more than six months or both.

This Act came into force on July 23, 1971, and appears in the 1971 annual statutes as Chapter 52.

THE CROWN TIMBER AMENDMENT ACT, 1971

Section 4 of The Crown Timber Act was amended to permit the Minister with the approval of the Lieutenant Governor in Council, to designate as Crown management units private lands, as well as public lands, on which trees are vested in the Crown and to enter into agreements for the supply of Crown timber from such units.

A new section, section 15a, was added to the Act authorizing the Minister to direct licencees by written notice, to offer to specified mill owners or operators the first opportunity to purchase timber.

Subsection 1 of section 47 of the Act, was amended by adding a new clause *k* providing penalties for failure to comply with a direction of the Minister under new section 15*a*.

A new section 53 was added to the Act providing that any regulation made under the Act may be limited territorially or as to time or otherwise.

This Act came into force on June 17, 1971, and appears in the 1971 annual statutes as Chapter 23.

THE FISH INSPECTION AMENDMENT ACT, 1971

The following amendments were made to the Act to bring it into line with recent amendments to the complementary Federal Act, the Fish Inspection Act (Canada).

Clauses a, d and g of section 1 of the Act defining the terms "container," "inspector" and "processing" respectively were repealed and new definitions of these terms substituted therefor.

Subsection 1 of section 6 of the Act was amended to prohibit the sale of fish intended for human consumption that is tainted, decomposed or unwholesome and subsection 1 of section 13 of the Act was amended by adding a new clause *ab* to authorize the Lieutenant Governor in Council to make regulations defining for the purposes of section 6 the expressions "tainted," "decomposed" and "unwholesome."

Clause d of subsection 1 of said section 13 was amended

to allow exceptions in appropriate cases to the regulations relating to the care of the plant and establishment of processors.

Clause f of subsection 1 of section 13 was amended by substituting the word "governing" for the word "prescribing."

This Act came into force on May 28th, 1971, and appears in the 1971 annual statutes as Chapter 19.

THE FORESTRY AMENDMENT ACT, 1971

Section 2 of The Forestry Act was amended by adding new subsection 2a providing for supplementary forest management agreements with landowners, the term of which shall not exceed the unexpired term of the agreement supplemented.

This Act came into force on May 28, 1971, and appears in the 1971 annual statutes as Chapter 17.

THE GAME AND FISH AMENDMENT ACT, 1971

A number of amendments were made to The Game and Fish Act, 1961-62, complementary to the transfer of the administration of fur farms from the Department of Lands and Forests to the Department of Agriculture and Food.

Paragraph 5 of section 1 of the Act was amended to include in the definition of "domestic animals and domestic birds" any fur-bearing animal kept on a fur farm as defined in The Fur Farms Act, 1971.

Clause a of section 2 of the Act was amended so as to make the provisions of the Act not applicable to fur-bearing animals kept on a fur farm as defined in The Fur Farms Act, 1971 subject to the provisions of new subsection 2 which provides that the Act applies to fur-bearing animals kept on a fur farm in respect of offences against sections 59 and 61 of the Act.

Clause a of section 56 of the Act relating to the possession of fur-bearing animals during the closed season, was amended by deleting therefrom the reference to the pelts of mink raised on a fur farm.

Clause *b* of section 57 of the Act was repealed and the following substituted therefor:

(b) possess, engage in or carry on, or be concerned in, the trading, buying or selling of pelts.

Subsection 2 of section 58 of the Act was repealed.

Section 59 of the Act was repealed and a new section 59

substituted therefor requiring the written authority of the Minister before taking wild fur-bearing animals in the natural state for the purpose of transferring such animals to fur farms.

Section 61 of the Act was amended by adding a new subsection 1a requiring the payment of the royalty prescribed by the regulations before transferring any fur-bearing animal taken under section 59 to a fur farm.

This Act came into force on June 17, 1971, and appears in the 1971 annual statutes as Chapter 30.

THE GANANOQUE LANDS AMENDMENT ACT, 1971

The Gananoque Lands Act, 1961-62, was amended by adding a new section 3a providing for an alternative method of disposal of the ungranted part of the lands described in the Schedule to the Act.

This Act came into force on May 28, 1971, and appears in the 1971 annual statutes as Chapter 18.

THE PROVINCIAL PARKS AMENDMENT ACT, 1971

The Provincial Parks Act was amended by adding a new section 11a which provides for the erection of stop signs at entrances to and intersections in provincial parks.

This Act came into force on May 28, 1971, and appears in the 1971 annual statutes as Chapter 16.

THE PUBLIC LANDS AMENDMENT ACT, 1971

Subsections 2 and 3 of section 16 of The Public Lands Act were amended to make the provisions thereof applicable to a person who causes a building or structure to be erected or causes to be made any improvement on lands designated by the Minister as a restricted area without first obtaining a permit.

Section 27a of the Act was amended making it an offence to deposit or cause to be deposited any material, substance or thing on public lands whether or not covered with water or ice, or both, without the written consent of the Minister or of an officer authorized by the Minister.

Subsections 1 and 2 of section 27b of the Act were amended to permit the Department to control and govern the use of public lands by the erection of signs, and not merely to prohibit the use of such lands. New subsection 2 provides a penalty for the contravention of the provisions of subsection 1.

Section 31 of the Act was amended to clarify the applica-

tion and intent of the section. Where defective letters patent are cancelled and corrected letters patent issued in their stead, the corrected letters patent shall have the effect of correcting every instrument made prior to the date of such corrected letters patent by the patentee or any person claiming under or through him. Corrected letters patent may be issued notwithstanding that the land has been registered under The Land Titles Act.

A new Part IV, consisting of sections 74 to 78 inclusive, was added to the Act which has the effect of assigning to the Minister of Lands and Forests the administration and control of the construction and maintenance of dams. Provision is made for the expropriation of required lands under The Public Works Act and for the Minister to enter into agreements to effect the purposes of this Part. In the event of a declared emergency the Minister is given powers to enter and use any lands, alter natural or artificial features of land, construct or use roads on any land, construct sidings, water pipes, conduits or tracks on any lands or place on or remove from any lands any substance or structure. Any of these powers may be exercised immediately notwithstanding any provision of The Expropriations Act, 1968-69.

This Act came into force on July 23, 1971, and appears in the 1971 annual statutes as Chapter 46.

THE SURVEYS AMENDMENT ACT, 1971

In clauses *j* and *k* of subsection 2 of section 31 of The Surveys Act the word "establish" was changed to "re-establish."

Clauses a and b of section 34 of the Act were amended to transpose the townships of Eastnor, Lindsay and St. Edmunds in the County of Bruce from clause a to clause b with the result that in these Townships the side lines of unrun township lots will be surveyed on the astronomical course of the appropriate side.

Section 56 of the Act was amended by adding new subsection 4a to provide for the situation where only part of the width of a road allowance is closed. In such case the whole width of the closed part belongs to the owners whose lands abut thereon.

Section 60 of the Act was amended by adding a new subsection 2 to permit regulations to be limited territorially or as to time or otherwise.

This Act came into force on July 23, 1971, and appears in the 1971 annual statutes as Chapter 53.

THE CIVIL RIGHTS STATUTE LAW AMENDMENT ACT, 1971

A number of statutes administered by the Department were

REGULATIONS

Forty-one regulations made under the authority of Acts administered by the Department of Lands and Forests were made and filed during the fiscal year from April 1st, 1970, to March 31st, 1971.

THE FOREST FIRES PREVENTION ACT O. Reg. 177/70—New O. Reg. 245/70—Amends O. Reg. 119/69 Change to Thunder Bay Fire District O. Reg. 357/70—New O. Reg. 358/70—New O. Reg. 358/70—New O. Reg. 359/70—New O. Reg. 359/70—New O. Reg. 360/70—New O. Reg. 360/70—New O. Reg. 361/70—New O. Reg. 363/70—New O. Reg. 363/70—New O. Reg. 363/70—New O. Reg. 363/70—New O. Reg. 364/70—New O. Reg. 365/70—New O. Reg. 365/70—New O. Reg. 365/70—New O. Reg. 365/70—New O. Reg. 367/70—New O. Rey. 367/70—New
THE FORESTRY ACT O. Reg. 243/70—Amends O. Reg. 173/65
THE GAME AND FISH ACT, 1961-62 O. Reg. 166/70—Amends O. Reg. 25/69
and 319/69 Fishing Licences O. Reg. 436/70—Revokes S.S. 8, 9 and 10 of O. Reg. 46/65 Repeal of provisions for Payment of Royalties on Commercial Fish Landings O. Reg. 441/70—New

THE PROVINCIAL PARKS ACT

'	O. Reg. 165/70—Amends O. Reg. 498 of R.R.O. 1960
- (O. Reg. 183/70—Amends Reg. 498 of R.R.O. 1960 Adds Polar Bear Provincial Park
(O. Reg. 376/70—Amends O. Reg. 61/70
	in Quetico Provincial Park
- (O. Reg. 114/71—Amends O. Reg. 346/65 Establishing 13 new parks and amending 12 existing parks
(O. Reg. 290/70—Amends O. Reg. 183/70 Polar Bear Park

THE PUBLIC LANDS ACT

O. Reg. 379/70—NewEstablishing "Restricted Areas," District of	of Rainy River
O. Reg. 422/70—New	
O. Reg. 455/70—New	
O. Reg. 517/70—Amends O. Reg. 370/61 and 87/69 Sale of 5 waterfront properties in twps. o	f Kirkup,
Watten, Bayly, Barrie and Kenora	

THE WOODLANDS IMPROVEMENT ACT, 1966

also amended by The Civil Rights Statute Law Amendment Act, 1971. This Act implements some of the recommendations of the Royal Commission on Civil Rights with respect to the provision of appeals from administrative decisions and the modification of stringent forfeiture procedures and rights of entry on property. The following statutes administered by the Department are amended: The Fish Inspection Act, The Forest Fires Prevention Act, 1968, The Lakes and Rivers Improvement Act, The Loggers Safety Act, The Provincial Land Tax Act, 1961-62, The Railway Fire Charge Act, The Spruce Pulpwood Exportation Act, The Surveys Act, The Wild Rice Harvesting Act, The Wolf and Bear Bounty Act, The Woodmen's Employment Act.

The Civil Rights Statute Law Amendment Act, 1971, came into force on proclamation and appears in the 1971 annual statutes as Chapter 50.

References to statutes herein are to the statutes as they appeared in the Revised Statutes of Ontario, 1960, and Statutes of Ontario, 1960 to 1970.

FEDERAL-PROVINCIAL

CO-OPERATIVE AGREEMENTS

Sea Lamprey Control and Fish Management Structure on the Saugeen River

By an agreement dated the 25th day of February, 1970, between Her Majesty the Queen in right of Canada represented by the Minister of Fisheries and Forestry and Her

Majesty the Queen in right of Ontario represented by the Minister of Lands and Forests, Ontario agreed to construct a sea lamprey control and fish management structure on the Saugeen River near the Town of Southampton in accordance with plans and specifications approved by Canada. The structure is to be operated by Ontario and the cost of construction shared equally by Canada and Ontario.

Loans to Commercial Fishermen

By an agreement dated the 28th day of April, 1970, between the Government of the Province of Ontario as represented by the Minister of Lands and Forests and the Government of Canada as represented by the Minister of Fisheries and Forestry, a program was established for the making of loans to persons engaged in commercial fishing in Lake St. Clair, the St. Clair River and the Detroit River where the taking of fish for commercial use has been prohibited by reason of unacceptable levels of mercury compounds in fish. The agreement provides for the creation of a Committee composed of representatives appointed by Ontario and by Canada for the purpose of implementing the program. The program is administered by the Minister of Lands and Forests and the cost shared equally by Ontario and Canada.

On the 11th day of August, 1970, a similar agreement was entered into between the above parties to establish a program for the making of loans to persons engaged in commercial fishing in the waters of Ontario other than in Lake St. Clair, the St. Clair River and the Detroit River where the taking of fish for commercial use has been prohibited by reason of unacceptable levels of mercury compounds in fish.

ORDERS IN COUNCIL

Orders in council recommended by the Minister of Lands and Forests in the Year 1970-1

THE CROWN TIMBER ACT

987/70 1217/70 1679/70 2274/70 2758/70 3389/70 172/71 988/70 1229/70 1681/70 2275/70 2864/70 3390/70 173/71 989/70 1240/70 1682/70 2396/70 2915/70 3426/70 174/71 990/70 1261/70 1740/70 2403/70 3030/70 3435/70 190/71 992/70 1269/70 1882/70 2404/70 3150/70 3435/70 191/71 993/70 1316/70 1942/70 2405/70 3151/70 3464/70 262/71 994/70 1370/70 1946/70 2406/70 3158/70 3491/70 262/71 994/70 1371/70 1946/70 2406/70 3158/70 3491/70 271/71 1002/70 1371/70 1946/70 2462/70 3159/70 3494/70 272/71 1002/70 1421/70 1952/70 2463/70 3253/70 3494/70 297/71 1028/70 1447/70 1953/70 2614/70 3	985/70	1132/70	1678/70	2273/70	2757/70	3388/70	83/71
989/70 1240/70 1682/70 2396/70 2915/70 3426/70 174/71 990/70 1261/70 1740/70 2403/70 3030/70 3432/70 190/71 992/70 1269/70 1882/70 2404/70 3150/70 3435/70 191/71 993/70 1316/70 1942/70 2405/70 3151/70 3464/70 262/71 994/70 1370/70 1946/70 2406/70 3158/70 3491/70 271/71 1002/70 1371/70 1947 70 2462/70 3159/70 3493/70 272/71 1003/70 1402/70 1951/70 2463/70 3253/70 3494/70 297/71 1024/70 1421/70 1952/70 2464/70 3255/70 3608/70 304/71 1028/70 1447/70 1953/70 2614/70 3263/70 3648/70 380/71 1029/70 1459/70 1963/70 2615/70 3264/70 3575/70 389/71 102/70 1543/70 2025/70 2618/70 3325/70 3759/70 393/71 1103/70 1549/70 2086/70 2619/70 3326/70 3759/70 394/71 113/70 1553/70 2086/70 2619/70 3326/70 3770/70 396/71 113/70 1553/70 2104/70 2654/70 3335/70 3770/70 396/71 113/70 1553/70 2104/70 2655/70 3335/70 3773/70 398/71 1122/70 1669/70 2207/70 2660/70 3337/70 3776/70 449/71 1121/70 1669/70 2270/70 2661/70 3375/70 3786/70 491/71 1122/70 1670/70 2270/70 2661/70 3375/70 3786/70 491/71 1122/70 1669/70 2270/70 2661/70 3375/70 3786/70 491/71 1122/70 1670/70 2270/70 2730/70 3376/70 3888/70 568/71 1123/70 1670/70 2271/70 2753/70 3379/70 3889/70 568/71	987/70	1217/70	1679/70	2274/70	2758/70	3389/70	172/71
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THE FINES AND FORFEITURES ACT 1589/70

THE FOREST FIRES PREVENTION ACT 1671/70

THE FORESTRY ACT 1663/70

THE GAME AND FISH ACT, 1961-62

1149/70	2276/70	3222/70	429/71
1222/70	2300/70	3236/70	631/71
1699/70	2819/70	3512/70	693/71
1837/70	2868/70	3992/70	
1883/70	2869/70	189/71	
2023/70	3090/70	343/71	

THE MUNICIPAL ACT

1166/70 1707/70 3346/70 3462/70

Five Mile Lake Provincial Park. Photo by D. Marshall.

613/71 648/71 660/71 668/71 685/71 686/71 687/71 689/71 690/71 755/71 758/71 762/71 763/71 829/71 837/71 842/71 885/71 888/71 890/71



THE NIAGARA PARKS ACT 1911/70

THE PRO	DVINCIAL PA	ARKS ACT	
1135/70	1962/70	2651/70	691/
1341/70	1968/70		

THE PUBLIC LANDS ACT

979/70	1717/70	3360/70	211/71
986/70	1800/70	3362/70	298/71
1001/70	1805/70	3496/70	300/71
1044/70	2032/70	3498/70	346/71
1109/70	2100/70	3570/7.0	420/71
1128/70	2124/70	3577/70	422/71
1179/70	2408/70	3579/70	424/71
1225/70	2410/70	3612/70	526/71
1228/70	2626/70	3665/70	558/71
1287/70	2752/70	3801/70	564/71
1375/70	2912/70	3820/70	657/71
1380/70	2924/70	3941/70	661/71
1407/70	2928/70	22/71	688/71
1420/70	2950/70	34/71	764/71
1446/70	2980/70	47/71	777/71
1584/70	3153/70	80/71	836/71
1617/70	3169/70	87/71	891/71
1697/70	3332/70	182/71	898/71
1698/70	3354/70	202/71	

THE SURVEYORS ACT, 1968-69 1715/70

THE WOODLANDS IMPROVEMENT ACT 1340/70

MISCELLANEOUS

1000/70	2031/70	2817/70	178/71
1588/70	2154/70	2894/70	311/71
1714/70	2628/70	2969/70	498/70
1743/70	2740/70	3866/70	825/71
1910/70	2812/70	>	

Development and Management of Annual Renewable Resources

By an agreement dated the 12th day of May, 1970, between Her Majesty the Queen in right of Ontario, as represented by the Honourable Rene Brunelle, Minister of Lands and Forests and Her Majesty the Queen in right of Canada, as represented by the Honourable Jean Chretien, Minister of Indian Affairs and Northern Development, the agreement dated the 24th day of January, 1962, establishing a program of mutual assistance in the development and management of the annual renewable resources in Ontario, was amended with respect to expenditures and sources of funds for certain projects, set out in the budget for the period commencing on the 1st day of April, 1970, and terminating with the 31st day of March, 1971.

STATEMENT OF PATENTS

Port Dover Fisheries Research Unit

By an agreement dated the 1st day of June, 1970, between the Minister of Transport for Canada and the Minister of Lands and Forests (Fisheries Research Branch) of the Province of Ontario, Transport granted permission to Lands and Forests to occupy and use certain lands comprising an area of 4,880 square feet and harbour facilities at Port Dover, Ontario, for a period of five years commencing on January 1, 1970, as a site for a Lands and Forest's Fisheries Research Unit. This agreement may be renewed for a further term of five years.

Statement of Patents, etc., issued during the year ending March 31st, 1971.

PATENTS

PATENTS		
Agriculture	4	
City-Town	40	
Free Grant	1	
Miscellaneous	161	
Summer Resort	1,519	1,725
LEACEC		
LEASES Water Lat	22	
Crown — Water Lot	22	
Rondeau	1	
Easement	1	
Water Power Agreement	1	25
LICENCES OF OCCUPATION	50	50
CANCELLATIONS		
Crown — Water Lot	13	
Rondeau	8	
Long Point	1	22
		AL

LICENCES OF OCCUPATION

64

64



Operations Branch is divided into six sections with duties and responsibilities as follows.

- Office Management: Equipment inventory; boat licensing; policy and procedure directive production; mimeograph and photo-copy reproduction service; Crown land records; staff uniforms; Legislative publication distribution; telephone credit card; telephone directory updating; identification card; personnel directory; permit to carry firearms; revolver issue; Branch personnel records; and Branch financial and records management programs.
- Purchasing: Purchasing of equipment, supplies and services; filling requisitions; leases and rentals; and arrangements for travel and conferences.
- Central Supply Warehouse: Receipt, security and distribution of equipment, supplies, uniforms and printed material.
- Conservation Information: Publications; weekly newsletter and press releases; material for outside agencies; display advertisements; photo and slide services; reference library and clipping service; and supply of information to public.
- Conservation Education: Display material for Department exhibits; production and purchase of motion films; film supply service; program material for radio and television; and lecture service.
- Accident Control: Administration of The Loggers' Safety Act; Hunter Safety Program; safety program in Provincial Parks; staff safety and first aid programs; and Workmen's Compensation.

Two youthful hunter candidates are tested for safety in gun handling by a Conservation Officer at Maple District Office, following completion of a Hunter Safety Training course. Photo by T. Jenkins.

OFFICE MANAGEMENT SECTION

During the fiscal year, the reproduction facilities processed an average of 50,000 photo copies and 10,000 mimeograph copies per month.

The continued management of the 187,000 active files, containing Crown land records, required the recording of 135 incoming documents and the filing and retrieval of 250 files daily.

A total of 4,450 transactions (acquisitions and write-offs) were recorded in updating the equipment inventory; and 30 licences for boats were obtained.

A total of 2,700 uniform requisitions were processed to supply approximately 1,100 regular staff and 900 summer casual staff (mainly parks) with uniforms and replacement of uniform items.

One thousand, two hundred and seventy telephone credit cards and 200 staff identification cards were issued during the year.

PURCHASING SECTION

The Section is vitally concerned with furnishing the means by which the work of the Department is maintained and furthered. In the year under review, activity continued at full pace. Basically, it was a matter of supply and demand with the Section ensuring that the Department's requirements were met immediately and economically with the best quality available, and that the over-all best value was obtained for the money expended.

With the continuing expansion of, and re-organization within, the Department, there were many, often involved, details of investigation and procurement.

All requisitions were forwarded to Services Branch for processing, that is, the registering of all requisitions and the recording of same on stock record cards where applicable, and the ordering by direct purchase orders and by requisitions to Central Supply Services (formerly to the Queen's Printer) and the Department of Public Works.

The Central Supply Division of the Department of Public Works came to the fore in this period by undertaking the purchasing, or performing the groundwork leading to purchasing, of supplies common to each department (e.g., duplicating supplies and bulk purchasing of paper).

Over 11,000 requisitions were received. Many and varied details entered into the completion and involved corre-

spondence, telephone usage, interviewing, searching, customs clearance, and the calling of tenders. Direct purchase orders issued totalled 7,756; Queen's Printer stationery requisitions, 5,314; Queen's Printer printing requisitions, 373; Central Printing requisitions, 730; and Public Works requisitions, 219.

Directions and oversight were maintained of leases and rentals of property for the Department throughout the Province in conjunction with the Department of Public Works. Telephone service was also maintained in conjunction with the latter department.

CENTRAL SUPPLY WAREHOUSE SECTION

During the fiscal year, the Section received a total of 417 tons of supplies and equipment and shipped a total of 267 tons, excluding mail. Shipments were made by express, freight, transport and mail and by internal supply to Department Offices.

Thirty types of licences were distributed to District Offices and approximately 3,500 issuers on 16,600 invoices. The 2,450,000 licences included hunting, angling, bait fish, roll net, dip net, frog, guide, trapping, trap-line and dog.

The distribution of Provincial Park Permits included 26,800 annual vehicle permits, 611,350 daily permits and 582,400 campsite permits.

Department uniforms were stocked and delivered to personnel on requisition.

CONSERVATION INFORMATION SECTION

The Section worked through various media during the past fiscal year to disseminate information on the protection and management of the renewable, natural resources under the Department's administration.

RELEASES

A newsletter of several pages carried Department news and regulations every week to all newspapers, broadcasting stations and outdoor writers in Ontario. The mailing list of 3,309 (at March 31) included magazines, trade papers, forest industries, conservation groups, and outdoor recreation clubs, and a number of writers and commentators outside the Province.

The French translation of the newsletter had a weekly circulation of 185.

News of more than normal urgency was supplied directly to important news outlets.

Conservation Spots supplied public service announcements to broadcasters in season, and Conservation Copy carried additional material to publishers.

Special appeals were prepared occasionally for news media to enlist public support for Department programs.

Information or prepared statements were supplied on request to outside agencies and to Department personnel invited to address public meetings or speak on broadcast programs.

SERVICES

During the year, 37,000 answers were returned by mail to persons asking for information on Crown land, outdoor recreation, nature study, forest tree planting, or forest industry. Numerous requests were answered by telephone. Many technical questions were forwarded to other Branches.

The Photograph Library loaned 9,000 black-and-white prints and 1,300 colour transparencies to newspapers and magazines during the year. It supplied sets of slides or prints on request to illustrate lectures. It now has 44,000 negatives and 7,465 colour transparencies.

Section photographers took photographs on assignment and supplied prints from the Darkroom.

The Reference Library circulated periodicals and press clippings through Head Office.

NEW PUBLICATIONS

Listed below are the Department publications released during the 1970-1 fiscal year. The list does not include scientific papers, management reports, training manuals, reference texts, consolidations of Acts, posters, and Provincial Park leaflets.

FISH AND WILDLIFE

Summary of the Ontario Fishing Regulations, 1971 Summary of the Ontario Hunting Regulations, 1970 Provisional Summary of Big Game Hunting Seasons in Ontario, 1971

Summary of Ontario Regulations which apply to Trapping and Fur-Dealing, 1970

The Game and Fish Act and the Ontario Fishery Regulations, 1970

Division of Waters and Fish Sanctuaries, 1971

Bear Hunting in Ontario, 1967-9 Ontario Turtles Ontario Fish and Wildlife Review (periodical)

OUTDOOR RECREATION

Leave Nothing Behind But
Ontario Hunting Casualty Report, 1969
Hunter's Handbook, Part I (50¢) (revised)
Why Hunter Safety Training? (revised)
So You Want to Go Camping (revised)

PROVINCIAL PARKS

Northern Ontario Canoe Routes Quetico Provincial Park Canoe Routes (revised) North Georgian Bay Recreational Reserve Canoe Routes (revised) Provincial Parks of Ontario (revised)

Algonquin Provincial Park (revised)

LAND AND WATER

The Ontario Map Catalogue, 1970

FORESTS

Planning for Tree Planting (revised)
Care and Planting of Forest Trees (revised)
Dryden Forest Station (revised)
Thunder Bay Forest Station (revised)
Orono Forest Station (revised)
Your Forests (periodical)

ADMINISTRATION

Annual Report of the Minister of Lands and Forests, 1970 Statistics, 1971 Publications, 1971 Does Nature Have a Chance? (revised)

CONSERVATION EDUCATION SECTION

The Section conducts an educational program which consists of the type of appeals calculated to attract public interest and explain in easily understandable terms the need for the wise use of renewable, natural resources.

VISUAL EDUCATION

The Section's film library contains 274 titles with two or more prints of many of the titles. All films are available for loan to field offices. During the year, approximately 1,700 films were shipped to field offices in answer to requests received. Each district has its own projection equipment and access to regional film libraries as well as the head office film library.

The Section also loaned 16mm motion picture projectors, 35mm slide projectors, screens and films to Provincial Parks offering an interpretive program to the public during the summer months.

During the year, the following films were added to head office and field film libraries.

Ahmeek — The Forest Headwaters Engineer Marsh Community Bear Country Rise & Fall of the The Beaver **Great Lakes** Beaver Valley Safety Adventures — Be Woods Wise Out of Doors Creatures of the Forest Seeds to Trees Ducks of Course Soliloguy of a River The Farm Tree Portraits Flames in the Forest Trees and Their Importance Forests for the Future Wildlands — Our Heritage Go North! World in a Marsh The Great Toy Robbery Your Friend the Water

Several thousand feet of motion picture film were available for use by television stations in Ontario.

In addition, a set of ten one-minute television shorts was prepared for distribution to Ontario television stations. The shorts covered various activities of the Department such as reforestation, new water bombing planes, nursery operations, timber scaling, training hose and pump crews, water fowl, tree pollination, provincial parks, and litter prevention.

Production was completed on two films entitled "Be Woods Wise", a safety film, and "Go North!", a film about recreation in northern Ontario. A start was made on a new film depicting safe hunting practices; it will be completed in the next fiscal year.

A set of ten one-minute television shorts, entitled "Vignettes of 1970" (distributed to Ontario television stations), was entered in the annual competition of the American Association for Conservation Information and awarded Third Prize.

Radio and Television. Radio and television stations throughout the Province have been most generous in their donations of free time to the Department, and District Offices regularly take advantage of these opportunities to reach the public.

EXHIBITS

Visual conservation appeals are featured in the Department's exhibits at many of the shows and fairs in Ontario. The following major exhibits were handled through this Section.

A display in Department's exhibit at Canadian National Sportsmen's Show, March, 1971. Photo by C. Van Gemerden.



Canadian National Exhibition, Toronto. Fishes of Ontario: An educational display of 20 varieties of Ontario's sport and game fishes. Wildlife of Ontario: This display of 25 species of animals and birds is accompanied by valuable information for students and others interested in wildlife habits and habitats. Hunter Safety Training: A display of safe hunting practices and good hunting manners as taught in the Hunter Training Course. Timber: Three animated models showing good woodlot management and the forestry services offered by the Department. Indians: Two members of the Iroquois Six Nations Reserve demonstrated leather work, bead work and wood carving. Forest Protection: A cartoon display of eight causes of forest fires and how to prevent these careless happenings. Also included - equipment used by a five-man forest fire fighting crew. Information and Publication Desk: For the purpose of answering enquiries regarding Department activities and services. The Conservation Poster Contest for elementary school children from six to fourteen years of age was held again this year. A Grand Prize of \$100.00 was presented for the best poster. First, second and third prizes, in each of three age groups, in the amounts of \$50.00, \$25.00 and \$15.00 were awarded. Thirty "Honourable Mentions," ten in each age group, were presented with books.

Central Canada Exhibition, Ottawa. An educational display of Ontario's fish and wildlife along with an illuminated map showing locations of the Provincial Parks, tree identification panels and a "seeds to trees" nursery stock.

International Plowing Match, Lindsay. A display of wildlife, defective and illegal firearms, The Woodland Improvement Act, film theatre, and forestry practices.

Royal Agricultural Winter Fair, Toronto. A display of nursery procedures — the growing and shipping of trees for reforestation projects; and a products-from-wood display, an anti-litter display, and good wildlife management practices.

Canadian National Sportsmen's Show, Toronto. An over-all display of education in conservation covering fish and wild-life management, forestry, Provincial Parks, safe gun handling practices, Ontario fur fashions, forest protection, Indian handicrafts and children's conservation poster contest.

Aid to Districts. Full co-operation was given to District Offices participating in sportsmen's shows and agricultural fairs such as the Western Fair at London, the International Plowing Match at Lindsay, the Timmins Sportsmen's Show, and the Canadian Lakehead Exhibition at Thunder Bay.

LECTURE TOURS

The Department kept in touch with the public through talks to fish and game associations, schools, church groups, service clubs and youth organizations. Illustrated lectures were given on many aspects of the Department's work. A total of 2,810 lectures was given to audiences totalling 177,114 during the past fiscal year. The totals included 757 lectures to 80,304 school children and 910 lectures given by Ontario Forestry Association personnel to 26,958 persons.

ACCIDENT CONTROL SECTION

The safety program, aimed at reduction in loss of life, personal injury and property damage, is continually developing and through research entering new fields in safety training to improve the safety record of the Department.

DRIVER TRAINING

The driver training and testing program, which commenced in Pembroke Forest District on an experimental basis in 1970, has proven the need for the program in all districts. The program is being extended as funds and training staff become available.

In Pembroke District, the accident frequency rate was reduced from 2.28 in the preceding fiscal year to 1.52 during the past year.

THE LOGGERS' SAFETY ACT

Safety education in the logging industry is of prime importance especially among the smaller operators who do not have, or cannot afford, safety programs. Our safety officers give assistance in safety matters where needed when they are making inspections in the course of enforcing the Act.

During the past year, our officers made more than 3,000 inspections under the Act. They advised on safety and issued warnings and stop-work orders for serious infractions of the Act and Regulations.

During 1970, fatal accidents numbered twelve, a decrease of six from the previous year.

HUNTER SAFETY TRAINING

The upgrading of instruction was continued during the past year. All instructors, who wished to continue in the program, were re-tested in 1970. Qualified instructors now total 1,162. Each instructor is required to conduct at least one class per year to remain on the active list, and each must be re-examined every three years.

During the year, 15,601 persons received training in safe hunting.

SAFETY IN PROVINCIAL PARKS

Field safety officers of the Section make frequent inspections in Provincial Parks and report hazardous or unsafe conditions to the appropriate authority for immediate remedial action. (The Section is not responsible for the beach patrol maintained in some parks)

Under the sponsorship of the Department, 55 canóeing-camping demonstrations were presented by the Ontario Safety League in seven Provincial Parks, beginning in Algonquin and extending across the Province to Quetico. The demonstration was expanded last year to include the safe operation of car-top boats and low-powered outboard motors. In addition, demonstrations of first aid and artificial respiration were given by the St. John Ambulance Association. The park demonstrations received wide publicity on radio and television.

WORKMEN'S COMPENSATION

Department costs for Workmen's Compensation in 1970-1 were \$262,824.53, an increase of \$37,504.31 over the preceding fiscal year. The total cost is composed of \$102,519.04 for pensions, \$18,187.01 for administrative costs, and \$142,118.48 for medical aid and compensation.

Compensable claims numbered 915, an increase of 161 over the previous year. The average cost per claim was \$131.00, a decrease of \$17.00. The decrease is misleading as the OSEP program commenced at the beginning of 1971; the majority of the claims were not finalized before the end of March, and their costs will be carried into the next fiscal year.

Fire control costs totalled \$8,882.26 of which \$7,062.99 went to actual fire fighting. The total cost was 77 per cent above the previous year.

Junior ranger costs amounted to \$14,666.21, a decrease of \$3,652.96 on the year although 178 more junior rangers were employed. Junior rangers accounted for \$6,192.77 and senior staff for \$8,473.44.

During the year, there was one death for which a pension was established. Two new pensions were established for permanent disability.

The Injury Frequency Rate was 18.5, an increase of 0.8 over the previous year. The rate is based on lost time in relation to man-days worked.

The Lands and Forests Safety Trophy was won by Sioux Lookout Forest District with an injury frequency rate of 4.5. During the year, the District had a total of 44,863 man-days worked and two lost-time injuries.



Research Branch is divided into an administration group and three sections, each with its subordinate units, with duties and responsibilities as follows.

ADMINISTRATION

Supervises research programs, operates and maintains Southern Research Station, and provides accounting and personnel services and the following professional and technical services.

Biomathematics and Statistics

Drafting Electronics Library Mechanical Photography

FISHERIES SECTION

Great Lakes Units: Fisheries Research Stations at Glenora (Lake Ontario), Wheatley (Lake Erie), South Baymouth (Lake Huron), and Sault Ste. Marie (Lake Superior).

Game Fish Units: Lake Trout, Brook Trout, Smallmouth Bass and Walleye.

Discipline Units: Selective Breeding, Parasitology, Limnology, Productivity, and Technical Studies.

FORESTRY SECTION

Maple Units: Site, Tree Nutrition, Environmental Physiology, Forest Ecology, Wood Science, Seed, Tree Breeding, Forestry Economics, Mensuration, Fire Control, and Developmental.

Field Units: Midhurst Research Unit, Southwestern (Maple), Southeastern (Tweed), South-Central (Dorset), Central (Sault Ste. Marie), and Northern (Thunder Bay).

WILDLIFE SECTION

The Wildlife Research Station is located in Algonquin Provincial Park. The following units are located at Maple. Big Game

Furbearers
Predators
Upland Game and

Upland Game and Waterfowl Wildlife Diseases and Parasites

A stage in the preparation of a display of the roots and stump of a white pine by Research Branch at Southern Research Station, Maple; the soil has been washed away with fire hose. The completed work was placed on permanent display at the Ontario Science Centre, Toronto.

FISHERIES SECTION

The fisheries research program reflects management needs as expressed by Fish and Wildlife Branch. Within these programs, every effort is made to anticipate problems of a broad nature, which are likely to develop, and to seek solutions in advance.

GREAT LAKES UNITS

LAKE ONTARIO UNIT

This program has three categories: cold-water fish studies, warm-water fish studies, and stream studies. The first emphasizes the effects of fishing in stock changes; the second, the effects of eutrophication; and in the third, the more basic aspects of biological productivity. The program is supplemented by arrangements for co-operative research by agencies and individuals.

The role of eutrophication in the deteriorative changes in the whitefish population has been added to other factors contributing to the decline of this species. The response of the species to anticipated eutrophication control measures will be closely observed.

There was a serious decline in the whitefish catch. Indications are that the lamprey density has changed little since the last report. The decline is attributed to an extreme reduction in recruitment since the catch relied on the 1965 year class which is now much reduced in numbers. The fact that recent year classes have been progressively weaker is cause for serious concern for the future of this species.

Results of plantings of lake trout, mostly as fingerlings, have revealed good survival to age 3. Survival beyond this is poor, and few fish old enough to spawn were ever captured. The vulnerability of the trout to the whitefish fishery and to the sea lamprey account for its failure to survive and reproduce.

Returns from splake planted in Lake Ontario in 1968 and 1969 have been very disappointing. They have not been sufficient to determine the success of early survival or that the dense sea lamprey population is responsible for the poor sampling results.

Coho salmon, from plantings by Ontario and New York State, and chinook salmon, from New York State plantings, were recovered from the fishery—chinook for the first time.

Since identification is difficult between immature rainbow, chinook, and coho, some difficulty has been experienced

in assessing data from untrained observers. A salmonid identification criteria table has been developed.

A review of the Japanese salmon suggests that the species offers considerable potential as a new species for Ontario.

A short paper describes some of the details of incubating walleye eggs and their thermal unit requirements.

The upper lethal temperature among young-of-the-year walleye was again examined with results closely paralleling those of the previous year.

Environmental monitoring observations showed in general that average values for chlorophyll and inactive chlorophyll or phaeo pigment, ammonia nitrogen, nitrate and nitrite nitrogen, phosphate, detergents changed little from earlier values.

The results of a synoptic survey of oxygen content of Bay of Quinte water from Belleville to Picton confirm advanced eutrophication. A relatively large volume of water along the bottom of the Bay of Quinte was found to be seriously depleted of oxygen. The assessment of fish stocks indicated that yellow perch maintained its relative position, but that walleye reached an almost record low.

A paper, entitled "The American Eel in Eastern Lake Ontario," reveals that eels enter the lake at age 6-8 years where they remain for up to 20 years before returning to the sea to spawn and die.

Comprehensive investigations, involving the standing crop of fish in Shelter Valley Creek, provided the data on which it is proposed to produce an energy budget and to test various experimental techniques for their effectiveness in manipulating the system.

LAKE ERIE UNIT

Fish stock monitoring, using index fishing and net-run sampling techniques, showed a decline in smelt catches as well as yellow perch. Since next year's catch will depend largely upon the same year classes, it is anticipated that it will be no better and possibly smaller.

Limnological studies were initiated in the western basin of Lake Erie and Lake St. Clair in support of the fisheries programs.

Three inshore and three offshore stations in Pigeon Bay were selected for fortnightly sampling. Visibility values and temperature profiles were obtained at each station. Plankton was sampled, and phytoplankton quantity estimated. Water samples for nutrient, pigment and particulate organic carbon analyses were collected from near-bottom, mid-depth and near-surface of each station.

Ten stations were selected in Ontario waters of Lake St. Clair for fortnightly sampling. Two tributary stations were located on St. Clair River and the Thames River. Data collected were similar to those collected in Lake Erie.

Studies of various aspects of the walleye population in the Thames River, Lake St. Clair and western Lake Erie were reorganized and expanded. A number of potential spawning locations, as characterized by gravel bottoms and fast flow, were mapped.

LAKE HURON UNIT

The program embraces two broad, major catagories: monitoring programs, in which the gross changes in species composition are measured; and research programs, in which specific species of special importance to man are studied in greater detail than the monitoring programs provide.

Results of pound net experimental fishing in South Bay document the following major trends.

The alewife began its invasion in 1951 and increased dramatically to a peak in 1964. This was followed by a decline until 1968. Catches in 1972 and 1973 are expected to show a marked increase since both 1969 and 1970 hatches appear to have been unusually abundant.

Whitefish catches have shown less fluctuation in abundance than any other common species. Fluctuations that have occurred have tended to compensate one another to produce the most stable level in the history of the fishery. A 32 per cent increase in catch over the previous year was due to the abundant 1968 year class and may reflect a reduced level of lamprey abundance.

Cisco catches were down considerably. Cisco were observed to be feeding on young smelt rather than alewives as previously observed.

Yellow perch catches were the lowest on record.

White sucker catches have fluctuated less than other abundant species. Catches were considerably higher than the previous year which had been very low.

Splake and kokanee catches were down by 82 and 97 per cent, respectively.

South Bay Smelt Index Stations showed a slight increase in smelt abundance over the previous year. Adult alewife and kokanee catches were markedly down, while splake increased due to the catch of yearlings from a planting earlier in the year. Whitefish declined, while white sucker continued to increase steadily.

In northern Lake Huron, chubs have shown a steady decline.

Earlier studies of whitefish, revealing the marked parallelism in the annual abundance indices for sac fry, for young whitefish and for older age groups, suggest that the general level of year class abundance is established early in the life history of whitefish. Correlation studies also suggest climatic conditions during incubation and hatching may be influential in establishing year class strength.

Consequently, studies were initiated to attempt to learn what factors are contributing to mortality of whitefish eggs. Initial trials, using mathematical models to simulate the impact of factors affecting whitefish production, were undertaken. The over-all conclusion from the studies was that mortality reduction is the most important goal a fisheries manager can strive for in attempting to conserve an exploited whitefish fishery.

A splake study in South Bay is dealing with the detailed life history and population dynamics of highly selected splake. Included are survival, reproducitve success and temporal and spatial distribution. The high proportion of mature yearling females caught in shoal gillnets suggests that a substantial egg disposition might occur as early as 1971.

The smallmouth bass fishery is expected to show improvement in the next two years because of strong 1968-70 year classes.

Taking eggs from a Georgian Bay kokanee. Photo by W. D. Marshall.



LAKE SUPERIOR UNIT

The main objectives have been the development, refinement and application of methods for assessing the success of the sea lamprey program and the provision of an increasingly precise and detailed accounting of the response of depleted fish stocks, especially lake trout, to the fishery management measures taken on their behalf.

The existance of significant qualities of mercury in lake trout has had considerable impact upon the sampling program since commercial fishermen have diverted attention to other species.

A report, "Life history of rainbow trout in Batchewana Bay, eastern Lake Superior," based on a two-year study, was produced.

Considerable effort has been expended in determining the best possible manner in which the extensive amounts of data required for this type of program can be processed.

GAME FISH UNITS

HARKNESS LABORATORY UNIT

A full-time director was provided with duties that include completion of earlier research assignments, development of new projects appropriate to the Laboratory, and the responsibility for the conduct of projects which are parts of the programs of other research units which make data collection demands on laboratory staff. Another major responsibility is the co-ordination of the activities of the several co-operative research agencies and individuals who use the laboratory.

A study was undertaken to assess the recovery of benthic populations in lakes treated with fish toxicants as part of a lakes reclamation program.

Biological and harvest data were obtained for the Lake Trout Unit, Smallmouth Bass Unit and Brook Trout Unit, while appropriate services were provided for the Parasitology Unit.

Demands of co-operative research projects in terms of accommodation, equipment and professional support were again substantial, and special programs were prepared for various visiting classes.

LAKE TROUT UNIT

Lake Opeongo census studies reveal that although the fishery has been variable, in terms of harvest and availability of the trout, it has remained relatively stable for about the last 20 years. It appears capable of sustaining an annual harvest over the long term of from 1,000 to 1,500 trout per year and a yield of 13 pounds per acre.

Two papers, "Long term effects of diet on the biology of the lake trout and the fishing in Lake Opeongo, Ontario" and "Trophic-dynamics of lake trout production systems," were published.

A master map has been prepared showing the distribution of the lake trout in Ontario on a lake1by-lake basis for both native and introduced populations.

BROOK TROUT UNIT

This program consists of studies on two natural lake populations and an assessment of the survival of hatchery reared fish in 18 lakes which lack natural brook trout reproduction.

A manuscript has been completed describing the survival of salmonids in six lakes. It shows that lakes with fewest resident species yielded a higher return than those with more complex populations. Planted splake and rainbow generally yielded higher returns than brook trout.

The low survival of planted fish was apparently the result of competition by resident fish species and predation by wild trout and fish-eating birds and mammals.

Studies on planting methods indicate that air-dropped fish survive better when dropped into shallow water rather than deep water, but hand planting is superior to air drops in terms of survival.

Preliminary results of an investigation into the feasibility of winter stocking show that the recovery of spring planted fish was considerably greater than from fall and winter plantings.

Other experimental work involved artificial spawning facilities and attempts to condition young trout to avoid predators in the early stages of their introduction by planting.

SMALLMOUTH BASS

Studies were conducted to determine the existence of relationships between such things as nest success, number of eggs and fry, and variability of year class.

Creel census data suggest that the bass population in Lake Opeongo are undergoing a growth rate change that might result in a stunted population. Studies are continuing to determine the cause and possible technique to reverse this trend.

Observations, made directly and indirectly of the life history, ecology and behaviour of bass, revealed sampling problems such as fish that, once trapped, return to the trap by preference, or those that refuse to enter a net, and the varied reactions of the fish to angling equipment in general. A study of the yearly life cycle of bass by direct underwater observation revealed the largest fish left the rock caves in which they spent the winter in late April and early May. All bass were out and feeding by the end of June. By mid-May, most adults were cruising the lakes and taking part in limited pairing. Males began nest preparation in late May on gravel bottoms, usually near logs or large boulders. Court-ship and spawning began at the end of May. Egg care by the male is minimal, but nest guarding continued throughout the night. Egg predation was limited but logperch persistently preyed on larvae. The young of the year moved to shallow water, and in late summer at about 2" in length started schooling. As fall approached, adults and sub-adults moved into deeper water and hid in rock caves.

Sublimnos, the underwater research platform, continued to provide a habitat for underwater studies. These included under-ice observations carried on throughout the winter.

A study was initiated to determine the nature of the problem of potential oil spills in the Great Lakes in response to appointment to a contingency force to clean up the effects of such an event.

WALLEYE UNIT

A study on water transparency explains why walleye are much more vulnerable to daytime angling in lakes with low transparency levels than those with high levels.

A complementary study of the influence of varying light intensity on walleye behaviour, especially feeding, was concluded and reported.

A co-operative project with the Fisheries Research Board of Canada, to identify different phenotypes of walleyes through electrophoretic examination, was completed and a report published.

A bibliography of about 2,100 citations concerning the walleye, sauger and blue pike has been completed and submitted for publication.

DISCIPLINE UNITS

LIMNOLOGY UNIT

The study of small lakes and ponds was expanded to include a study of the higher aquatic plants, phytoplankton, and a wider range of chemical characteristics. The inclusion of the higher aquatic plants is to relate their distribution and abundance to the physical and chemical properties of the respective waters and to the extent of eutrophication. It is hoped that indicator species may be recognized.

Attempts to relate water chemistry and degree of eutro-

phication of the lakes and ponds to the size, soil types, physiography and other features of their watersheds are showing promise.

SELECTIVE BREEDING UNIT

The broad objective is to explore the potential of selective breeding, hybridization and genetic manipulation as a means of improving the quality of fish shocks or of modifying species characteristics to accommodate environmental changes.

A serious loss occurred to the program when the entire stock of 305, age III parent hybrid splake was stolen or destroyed by vandals at one of our hatcheries. An additional 253 highly selected mature hybrids were stolen from another hatchery.

In April, 1970, 25,000 F₄ fingerling splake from selected parental stock were provided to the State of Michigan where they will be reared to yearling stage before being released in United States waters of Lake Huron. The same number were transferred to the Chatsworth Hatchery from where they will be transferred to our Lake Huron waters.

The first major plantings of progeny from the Ontario brood stock were made this year. They consisted of 100,000 yearlings in Lake Huron, 100,000 in Georgian Bay, and 60,000 in South Bay.

Studies of the life history and ecology of successive generations of splake in natural conditions have been undertaken as a means of learning what to expect of their performance.

Early maturing hybrids which are rejected in the process of selection for deep swimming may have their own specific value. Although no better in their ability to perform in shallow water than brook trout, they do have hybrid vigour. Their performance is being tested in ponds as a basis for comparison with brook trout and rainbow trout. Such a study may suggest different selection procedures useful for such waters.

PARASITOLOGY UNIT

The survey of the parasite fauna of fish in Lakes Erie and Ontario was completed. A comparable survey of Lake Superior fish was initiated.

Considerable attention has been given to the development of co-operative studies on parasites of particular importance by individuals at the Universities of Toronto and Guelph.

A diagnostic service is provided to field offices, scientists in other agencies, and to the general public, for the identification of parasites, diseases and abnormalities.

PRODUCTIVITY UNIT

The broad objectives of lake classification are to provide a means of estimating the effects of environmental variables on yield of fish. A morphoedaphic index (total dissolved solids divided by mean depth) has been useful for this purpose and is being refined.

TECHNICAL STUDIES

A commitment was made in co-operation with Fish and Wildlife Branch to assess plankton populations in Lake Erie adjacent to the site of the Nanticoke Hydro development.

CO-OPERATIVE RESEARCH

Research projects, in co-operation with the Universities of Toronto, Guelph, York, Ottawa, Montreal, Waterloo and Dalhousie, Ontario Water Resources Commission, Canada Centre for Inland Waters, Atomic Energy of Canada, National Science Foundation, Macinnis Foundation, Royal Ontario Museum, and Ontario Department of Agriculture and Food, were carried out.

FORESTRY SECTION

The work of the Nursery and Plantation Unit was divided, with tree production and field planting studies being transferred to Midhurst Nursery, and frost hardiness and dormancy studies continuing at Maple as the Environmental Physiology Unit.

MAPLE UNITS

SITE UNIT

The present research program is not only oriented towards land classification, which deals with the relatively stable site features as a basis for assessing potential productivity, but it is also aimed at serving silviculture directly by dealing with the more variable site conditions and related actual productivity.

The acquisition of an atomic absorption spectrophotometer, and improvement of other laboratory facilities, now allows expanded co-operation beyond other forestry research units to include fisheries and wildlife research programs requiring analyses for metal elements including mercury.

A study of the natural processes and relationships which influence fertility is underway.

Selection of suitable areas for studies, relating to the inter-provincial fertilization program, continued.

Water table levels, soil moisture content, soil water potential, and radial growth of red pine were measured throughout the growing season.

Silver maple seedlings with divided root systems were grown in nutrient solution culture for a study of the effect of non-uniform moisture availability.

Analysis of radial and length growth in the stem and root systems of four 33 year-old, 46-foot-tall red pine was completed. Maximum length of roots approximated 23 feet. Average roots grew 16 feet in the first 12 years. Radial growth usually declined after 10-15 years following crown closure and increasing distance between roots and their carbohydrate supply.

TREE NUTRITION UNIT

Studies were conducted in the greenhouse and nursery beds to develop methods of fertilizing young outplanted trees on adverse sites. Changes in the foliar nutrient concentration and growth of container-grown trees, outplanted to a nursery site, are being examined to establish bench marks.

Fertilization trials, in conjunction with annual growth measurements at various heights on the bole, were carried out. These measurements are being taken on black and white spruce, jack and red pine, and sugar maple to obtain comparative growth rates of different sizes and the annual volume increase.

Sample plots were established in natural stands of trembling and large tooth aspen in the Madawaska Valley to study the growth and type and degree of defects. Studies will determine whether the defects are due principally to poor nutrition or to other factors such as frost damage, root fungi or rodents.

ENVIRONMENTAL PHYSIOLOGY UNIT

The aims are to determine the effects of various environmental factors on the physiological processes of trees, and to assist and improve nursery procedures and practices by the implementation of the findings.

Emphasis is placed on determining the varying degrees of frost hardiness and dormancy of our native coniferous species throughout the year, and the development of methods of determining these characteristics. Indications are that during certain periods of the year, under natural conditions, the degree of frost hardiness is related to the degree of dormancy.

FOREST ECOLOGY UNIT

Studies continued on yellow birch and sugar maple relating to the optimization of the growth and development of established yellow birch regeneration and with characterization of sugar maple defect especially with regard to factors which regulate defect syndrome development.

Additional evidence for the strong interaction between overhead and lateral competition, and their joint effects on height and diameter growth and the form and quality of yellow birch saplings, was obtained.

Tentative evidence for the adverse effects of high light intensity, on internode elongation of yellow birch germination, was gathered in a growth room experiment.

Occurrences of bole damage due to insects and to frost cracking show definite chronological trends which are being compared to climatological data to determine the specific ecological conditions under which such high incidences occur.

Winter sunscald was studied in relation to intensity of cut in a drumlin-situated stand with severe damage level.

WOOD SCIENCE UNIT

Investigations aim at defining the specific physical and chemical wood characteristics which contribute to the superior quality of the manufactured products, and to relate their characteristics to heritable and environmental factors. The principal species has been black spruce with new emphasis being directed to develop a program on poplar in co-ordination with the Tree Breeding Unit.

A contractural arrangement with the Ontario Research Foundation allowed that organization to conduct research on the anatomical and chemical properties of wood.

The Faculty of Forestry at the University of Toronto has initiated studies at the post-graduate level in conjunction with Research Branch and the Foundation.

SEED UNIT

Studies continue of the effects of physical seed characteristics on the growth of seedlings. Included are investigations of the variability in growth and yield related to seed source, and management problems involved in production of seed on selected sources of phenotypically superior stands.

Practical improvement in seedling growth due to separation of seed on the basis of physical characteristics was obtained for black and white spruce and jack pine, at a maximum shippable size for tubelings.

There is strong indication from experiments carried out for the spruces and jack pine, under greenhouse conditions at least, that germinative energy is related to subsequent growth and that germination conditions and seed treatments have a marked effect upon germinative energy.

TREE BREEDING UNIT

The work of the unit continues to concentrate on four major projects: poplar and spruce breeding, white pine breeding, and hard pine breeding.

The best selections of hybrid and native poplars were propagated and field tested. A major pilot project was initiated in co-operation with Timber Branch for poplar production in short rotations in southeastern Ontario.

Twenty-three superior trembling aspen and cottonwood trees were selected from native Boreal Forest stands and from southern Ontario. They were established at the Maple nursery for testing purposes. One hundred and ninety-five superior new hybrids were also selected at Maple for clonal propagation and testing.

The best 58 aspen hybrid clones, observed and propagated for three years, were selected for larger-scale propagation and field testing. The selected clones demonstrated excellent performance and showed a consistently good rooting ability of stem cuttings.

As new spruce hybrids are obtained, it becomes possible to compare their performance and relate this to the planting stock currently used. Several experiments were started last winter, and results of preliminary nursery measurements for some of the hybrids are favourable, but field performance will be the criterion used to judge their value.

In order to confirm the hybridity of interspecific hybrids, it is essential to readily identify a species or hybrid at an early age. A technique developed of examining cross-sections of primary needles seems promising.

Vegetative propagation trials have produced good results in rooting of spruce.

White pine studies were concentrated on developing and testing *Pinus griffithii* x *P. strobus* hybrids, on vegetative propagation, and on blister rust testing of the progenies of putatively resistant trees.

Significant progress was made in vegetative propagation of white pines. Good rooters were found among the tested trees, and the development of white pine clones is anticipated.

FORESTRY ECONOMICS UNIT

The Unit's aim is to assemble, analyze and develop economic information which may be combined with biological findings in subsequent practical implementation.

McCullough Lake sample plot area, May, 1970, showing regeneration in a 50-foot wide plot heavily thinned in 1961. The basswood was planted; the white ash is natural. Photo by T. Jenkins.



It is engaged in collecting and maintaining information on the forest resources, forestry operations, and forest-based industries of the USSR and of the countries currently within the Soviet sphere of influence.

MENSURATION UNIT

This unit quantifies information which is basic to regional land use planning, to the regulation of cut in forest areas, and to various uses such as volume or growth estimation in routine management of the timber resource. Areas of work include the observation and measurement of forest stands, the determination of volume yield per acre, assessment of rates of growth, and the prediction of future wood production.

FIRE CONTROL UNIT

This unit was established during the year to study aspects of fire control. Work was directed towards the development of a long-range program.

A review was initiated of completed, current, and proposed fire research programs, projects and studies in Canada and the United States.

Assistance was provided to Forest Protection Branch primarily with detection assessment and improvement studies and the evaluation of certain fire retardant chemicals.

DEVELOPMENTAL UNIT

Modifications and improvements were made to the Tree Breeding greenhouse ventilating system, and a new design developed for exterior shade screens.

An irrigation system, using recycled water for the tree nurseries on the Station, was designed and submitted as an improvement project.

Assistance was given to other units and branches in developing equipment, material and techniques peculiar to their requirements.

ENVIRONMENTAL STUDIES

A study has been initiated to provide information on the North Simcoe District of the Toronto-Centred Region with respect to the capacity of the environment to attract and sustain outdoor activities without environmental deterioration. The study group, directed by a member of Research Branch, is composed of personnel from various other branches.

TUBED SEEDLINGS

A variety of empirical tests, dealing with methodology of growing tubed seedling material in a greenhouse environment, has been carried out at the request of Timber Branch.

FIELD UNITS

MIDHURST RESEARCH UNIT

Several plantings were made in the Vespra and Kemptville District research areas and in Parry Sound District and other locations in connection with a number of projects related to practical problems in nursery operations or planting.

The study of over-winter storage methods was continued at Orono Nursery. First-year measurements of survival, total height and terminal growth were obtained in the fall. Further studies to examine the influence of degree of hardiness were initiated at Orono and Kemptville Nurseries.

SOUTHWESTERN FOREST UNIT

One objective is the development of practical techniques for the selection, mass production, establishment and culture of fast-growing, veneer-quality phenotypes of the commercially important hardwood species in the lowlands and uplands of southern Ontario. Tests were made using mounding and draining techniques for planting on poorly drained sites. Rooted material of silver maple, eastern cottonwood and jackii poplar were outplanted in Ellice, Beverly, Luther and Elderslie swamps.

The objective of an upland program is the establishment of hardwood in suitable combinations on open sites and the rehabilitation of downgraded woodlots in southwestern Ontario. Special emphasis is placed on the use of high-quality poplar and poplar hybrids as early associates capable of providing a balanced environment for the succession of climax hardwoods.

A total of 2,000 unrooted cuttings of *Populus euramericana* were planted in five different locations to determine the effects of site on their rooting ability, survival and initial development. It was observed that cultural treatment and site quality play an important role in early development.

SOUTHEASTERN FOREST UNIT

Information, gathered from tests conducted, reveals that prescribed fire can be used successfully as a means of preparing a seed bed for yellow birch and for reducing competition. One or two fires, taking place in successive autumns, can produce excellent seedbed conditions, providing the second (or only) burn occurs during a yellow birch seed year. In addition, the stand should be cut during the autumn or winter following the fire to ensure adequate light for height growth of the seedlings during their first growing season.

The use of peat wedges for planting on shallow land was tested, using over 14,000 coniferous and hardwood trees.

An experiment to convert pure coniferous stands to mixed stands by hardwood underplanting continued, with plantings of poplar and red oak.

SOUTH-CENTRAL FOREST UNIT

Sugar maple growth data were obtained to develop growth prediction techniques for stands which have been modified by logging or other treatment. From the results, it is intended to formulate guidelines for marking and cutting to achieve increased growth of high-quality timber without impairing wildlife, recreation and aesthetic values.

Approximately 100 acres of the Swan Lake Research Forest were examined and marked for improvement cutting to test the guidelines.

Several groups of foresters and forestry technicians from District Timber Units and industry participated in free grading and timber marking exercises at Swan Lake.

CENTRAL FOREST UNIT

Work consists of field and laboratory studies of nutrition and growth, and the productivity ecology of spruce, as well as species and racial variation in the spruce genus. Included are some limited studies of tree nutrition in relation to forest disturbance.

A method has been developed to induce accelerated growth rate and enforced dormancy, involving varying day length and artificial low temperature regimes, in order to investigate taxonomical, physiological and genetical relationships within and between spruce species. The method has been verified by successfully producing more than 70,000 spruce seedlings in a twelve-month period which are equivalent to three-year-old nursery grown stock.

NORTHERN FOREST UNIT

The purpose of the Unit is to carry out experimental work and investigations that will contribute to the effective silvicultural management of the forests of northern Ontario.

A detailed review was initiated of the accumulated regeneration information provided from the long-term investigation of the effects of harvesting in the spruce-fir forest. Material is being assessed for its convertibility for use in a simulation model for predicting to maturity the status of young balsam fir stands.

The first examination, of 500 assessment quadrats on the balsam fir seed tree control study, revealed the effectiveness of the control measures as well as the poor seed crop for the previous year.

Balsam fir seed germination tests supported earlier results

indicating unpredictability and generally very poor germination success.

Work on poplar was re-activated to study and evolve proper silvicultural management techniques for the extremely large and increasingly important native poplar resources.

An exploratory stem quality survey on young aspen suckers, which proliferate following mechanical harvesting in the spruce-fir forest, was completed.

WILDLIFE SECTION

Although the broad objectives of the wildlife research program remain essentially the same, there will be an increasing emphasis on the studies of ecosystems to meet a more comprehensive environmental responsibility.

BIG GAME UNIT

Dr. A. Bubenik, a specialist in ungulate behaviour and nutrition, joined the staff.

A study of productivity and hunting morality of deer continued for the eighteenth consecutive year in the Canonto study area in Tweed District. From this it is anticipated that techniques will be developed for reliable indices to population levels and the several factors which may affect them. An extensive browse survey was conducted over the entire area to measure long-term changes in winter food supply.

A three-year study was initiated on a 200-square-mile area near Loring (Parry Sound District) to document changes in winter distribution of deer in and around a major yarding complex in an effort to determine causative factors.

A moose habitat study was conducted in Sioux Lookout District to relate seasonal variations in the utilization of portions of the range by moose to food quality and quantity.

A socio-economic study was conducted to test the hypothesis that the relative importance of potentially attractive features in an area is determined by the social background of the individual hunter, and the importance of each is modified by consideration of time and cost.

An inventory of the moose and caribou in the Round Lake Indian Band Area was estimated by sample counts. The purpose was to evaluate the ability of the ungulate herds to provide a source of meat for the local residents, and to assess the feasibility of encouraging a hunter-based tourist trade. This is reported in an Indian development study in

northwestern Ontario "The Land and Resources of the Round Lake Ojibwa."

The use of infra-red in remote sensing has been tested by the Unit staff in conjunction with their other studies. Tests have demonstrated that animals can be detected but not yet identified as to species. Work is continuing on the refinement of equipment and technique.

PREDATOR UNIT

The black bear has replaced the timber wolf as the major predator under invesitgation. Work on wolves is confined to laboratory studies on taxonomy, ageing techniques, and analysis of reproductive tracts.

Aerial surveys of polar bears were conducted along the Ontario coast of Hudson Bay to maintain the surveillance of numbers and distribution.

The ecological investigation of the black bear was continued co-operatively with North Bay District. Studies included methods of capture, range and movements, population size, food habits, and behaviour.

WILDLIFE DISEASES AND PARASITES

The principal objective of these studies is to identify the disease and parasites present in the wildlife of the province and determine their frequency, incidence geographic distribution and effects.

A collection of black bear tongues and diaphragms was started to determine the status of trichinosis.

A 10-year study of kidney worm in mink from Parry Sound District was completed; it involved 1,400 animals. A report on the study is in preparation.

Examination of sick and dead ring-billed gulls indicated that the unusually high mortality may be related to high levels of DDT, Dieldrin and PCB's (polychlorinated biphenyls) in this species.

Rabies has shown an appreciable decline from the previous year. The red fox and striped skunk remain the most important wildlife vectors. Progress is noted in the development of an oral rabies vaccine for wildlife. Mr. D. H. Johnston of the wildlife research staff had the opportunity to investigate the European rabies situation while acting as a consultant to the WHO-FAO Co-ordinated Research Program on Rabies in Central Europe.

UPLAND GAME AND WATERFOWL

An analysis of the morphology of the prairie grouse population on Manitoulin Island began. It demonstrated that about

60 per cent of the birds there are hybrid prairie chickens crossed with sharp tail grouse. This is an unusually high hybrid ratio. A study of the courtship behaviour of these two species has indicated how their behaviour evolved and how it functions to prevent hybridization in most areas.

A paper was published which discusses the shoulder spot display, its evolution and function in the grouse family.

Recoveries from blue/snow geese banded in 1969 show that the bulk of the Ontario breeding colony moves west along the southern Hudson Bay coast and follows the Great Plains migration route via the Dakotas, Iowa and Missouri to their wintering grounds in Louisiana and Texas.

Eggs from geese, herring gulls and common loons were collected for pesticide residue measurement. Levels of DDT and its metabolites and Dieldrin were negligible in goose eggs. In gulls, the levels ranged between 12.46 and 27.33 ppm which is not unusual in these species. Loon eggs showed an appreciable load of these contaminants. Studies on thickness of egg shells of loon eggs show a significant decline in shell thickness over the past decades. There is

Holding a mallard duck for banding at Morrisburg Bird Sanctuary. Photo by B. Colvin.



some indication that environmental contaminants are responsible for this change, but further studies are required to test this hypothesis.

FURBEARER UNIT

The high colony density and large proportion of water areas occupied by beaver indicate that the beaver population in Algonquin Provincial Park is nearly maximum. Previous trends in the population indicate that their numbers will decrease within a year or two, regardless of trapping effort.

The beaver research project, which was part of an evaluation of the natural resources and the social and economic problems associated with resource utilization by members of the Round Lake Indian Band, showed densities of colonies comparable with other areas of the northern edge of the Canadian Shield. Indications are that populations could withstand a much higher trapping effort.

A report in preparation of earlier studies of the ecology of marten in Algonquin Park showed this animal to be largely terrestrial in its activities, with a preference in both summer and winter for forest types containing a high conifer proportion. Analysis of 702 scats revealed a summer food preference for small mammals, particularly field mice, birds' eggs and young birds and berries. Insects were occasionally eaten.

WILDLIFE RESEARCH STATION

The facilities of the station in Algonquin Park were used for various parts of studies as reported above. In addition, 28 staff members and students from other agencies sponsoring wildlife research were accommodated.

Accommodation was provided for a biological field course sponsored jointly by York, Queen's and Carleton Universities.

TECHNICAL SERVICES

This Section, a part of the Branch Administration, provides specialized professional and technical services in the following fields.

BIOMATHEMATICS AND STATISTICS

The course on the use of computers for statistical and non-statistical computations was repeated.

The "Maple Model" was reformulated as a "growth" model, and from that a cutting model was developed. This appeared to demonstrate the thesis that, where plus stands of hard maple exist on deep fresh soils in Algonquin Park, a

series of selective cuts at about 20-year intervals is likely to improve the quality of the stands in perpetuity.

A system for quality-class, operational cruising of stands containing hardwoods was developed. Computer programs were written to compile the cruise tallies and to calculate the expected volume of wood and lumber to be recovered from the cruised areas.

Simplistic models were developed to describe run-off characteristics of the five major river basins of northern Ontario, in terms of their mean annual temperature and precipitation regimes, and to predict the depletion of snow on the ground in terms of air temperature and its diurnal fluctuation.

There has been substantial involvement on a Timber Branch Committee to analyze their information requirements and to design a Management Information System.

DRAUGHTING

The Unit provided maps, charts and figures for reproduction in Branch reports and scientific journals. A map and aerial photograph library is maintained.

ELECTRONICS UNIT

This Unit was established on June 1, 1970, by the transfer from Forest Protection Branch to Research Branch of D. A. Cooper, Communications Technician.

Work has continued on the Forest Protection Phi-TRAN weather reporting system. A communication survey of the province has been completed, and there was consultation in the development of the infra-red fire mapper.

LIBRARY

The Library converted from the Dewey Decimal System to the Library of Congress Classification, providing a systematic arrangement of material according to subject matter. Approximately 600 books were added.

MECHANICAL

The principal projects completed were: Flail scarifier, for planting site preparation in rough terrain, mounding plough, for deep ploughing in poorly drained land in southern Ontario; and fish conditioning apparatus, to condition hatchery fish to avoid predators following planting.

PHOTOGRAPHY

The staff photographer provides all photographic documentation in the laboratory and in the field required by Research Branch personnel. She provides black-and-white or colour, in still or in motion, employing macro, semi-macro, and micro, photographic techniques.

PUBLICATIONS

Published during the year ending March 31, 1971

Publications marked with an asterisk (*) are based on Research Branch data but written by former staff members or as part of co-operative projects.

FISHERIES SECTION

- Berst, A. H. and G. R. Spangler. 1970. Population dynamics of F₁ splake (*Salvelinus fontinalis x S. namaycush*) in Lake Huron, I. Fish, Res. Bd. Canada 27: 1017-1032.
- Christie, W. J. 1970. A review of the Japanese salmons (Oncorhynchus masou and O. rhodurus) with particular reference to their potential for introduction into Ontario waters. Ont. Dep. Lands Forests, Res. Branch, Res. Inf. Paper (Fish.) No. 37. 46 p.
- Christie, W. J. 1970. Introduction of the cherry salmon *Oncorhynchus masou* in Algonquin Park, Ontario. Copeia 2: 378-379.
- Emery, A. R. 1970. Fish and crayfish mortalities due to an internal seiche in Georgian Bay, Lake Huron. J. Fish. Res. Bd. Canada 27: 1165-1168.
- Emery, A. R. Sublimnos: "Volkswagen" of underwater habitats. Science 168 (3927): 62-63.
- *Faber, D. J. 1970. Ecological observations on newly hatched lake whitefish in South Bay, Lake Huron. *In* Biology of coregonid fishes. Papers presented at the International Symposium on Biology of Coregonid Fishes, Winnipeg,

Site 14 in Talbot River survey, 1970. Photo by W. D. Marshall,



- Canada, Aug. 25-28, 1969. Univ. Manitoba Press, Winnipeg. pp. 481-500.
- Hurley, D. A. 1970. Seasonal changes in several biotic and abiotic constituent's at three stations in the Bay of Quinte. Ont. Dep. Lands & Forests, Res. Branch, Sec. Rep. (Fish.) No. 73. 50 p.
- Kerr, S. R. and N. V. Martin. 1970. Trophic-dynamics of lake trout production systems. *In J. H. Steele (ed.), Marine food chains. Oliver & Boyd, Edinburgh. pp. 365-376.*
- Lawrie, A. H. 1970. The sea lamprey in the Great Lakes. Trans. Amer. Fish. Soc. 99(4): 766-775.
- Leach, J. H. 1970. Epibenthic algal production in an intertidal mudflat. Limnol. Oceanogr. 15(4): 514-521.
- *MacCallum, W. R. and H. A. Regier. 1970. Distribution of smelt, Osmerus mordax, and the smelt fishery in Lake Erie in the early 1960's. J. Fish. Res. Bd. Canada 27: 1823-1846.
- Martin, N. V. 1970. Long-term effects of diet on the biology of the lake trout and the fishery in Lake Opeongo, Ontario. J. Fish. Res. Bd. Canada 27: 125-146.
- Reckahn, J. A. 1970. Ecology of young lake whitefish (Coregonus clupeaformis) in South Bay, Manitoulin Island, Lake Huron. In Biology of coregonid fishes. Papers presented at the International Symposium on Biology of Coregonid Fishes, Winnipeg, Canada, Aug. 25-28, 1969. Univ. Manitoba Press, Winnipeg. pp. 437-460.
- Ryder, R. A. 1970. Major advances in fisheries management in North American glacial lakes. Amer. Fish. Soc., Spec. Publ. No. 7: 115-127.
- Spangler, G. R. 1970. Factors of mortality in an exploited population of whitefish, *Coregonus clupeaformis*, in northern Lake Huron. *In* Biology of coregonid fishes. Papers presented at the International Symposium on Biology of Coregonid Fishes, Winnipeg, Canada, Aug. 25-28, 1969. Univ. Manitoba Press, Winnipeg, pp. 515-529.
- *Tait, J. S. 1970. A method of selecting trout hybrids (*Salvelinus fontinalis* x *S. namaycush*) for ability to retain swimbladder gas. J. Fish. Res. Bd. Canada 27: 39-45.
- *Tedla, S. and C. H. Fernando. 1970. Some aspects of the ecology of the parasitic fauna of the gills of yellow perch, *Perca flavescens*. J. Fish. Res. Bd. Canada 27: 1045-1050.
- *Tedla, S. and C. H. Fernando. 1970. Some remarks on the ecology of *Echinorhynchus salmonis* Muller 1784. Can. J. Zool. 48: 317-321.
- Uthe, J. F. and R. A. Ryder. 1970. Regional variation in muscle

- myogen polymorphism in walleye (Stizostedion vitreum vitreum) as related to morphology. J. Fish. Res. Bd. Canada 27: 923-927.
- The following article may be obtained on request:
- Loftus, K. H. 1970. Mercury in our environment. Presented at meeting of N.O.T.O., Thunder Bay, Dec. 1, 1970.

FORESTRY SECTION

- Farrar, J. L. and R. M. Rauter. 1969. Development of the ovulate cone in white spruce. *In* Proc. 11th Meeting Comm. Forest. Tree Breeding in Canada. II:31.
- Glerum, C. 1970. Vitality determinations of tree tissue with kilocycle and megacycle electrical impedance. Forest Chron. 46: 63-64.
- Glerum, C. 1970. Drought ring formation in conifers. Forest Sci. 16: 246-248.
- Glerum, C. and E. M. Krenciglowa. 1970. The dependance of electrical impedance of woody stems on various frequencies and tissues. Can. J. Bot. 48: 2187-2192.
- Heimburger, C. 1969. Summary report on forest tree breeding 1966 and 1967. *In Proc.* 11th Meeting Comm. Forest Tree Breeding in Canada. II: 55-63.
- Mullin, R. E. 1970. Discontinuity in reforestation in practice and research. Sixth World Forestry Congress. Volume 2: 1483-1485.
- Mullin, R. E. 1970. Old field planting of white spruce in southern Ontario. Tree Planters' Notes 21(3): 27-30.
- Mullin, R. E. and W. R. Bunting. 1970. Frozen overwinter storage for red pine. Tree Planters' Notes 21(4): 8-9.
- Rauter, R. M. and J. L. Farrar. 1969. Embryology of *Picea glauca* (Moench) Voss. *In* Proc. 16th Northeastern Forest Tree Imp. Conf. 13-24.
- Rauter, R. M. and J. L. Farrar. 1969. Embryology of *Picea glauca* (Moench) Voss. *Abstract in Proc.* 11th Meeting Comm. Forest Tree Breeding in Canada. II: 289.
- Stroempl, G. 1968. Relationships of fruit and seed form, size, weight and soundness of graded basswood fruit. Tree Planters' Notes 19. 22-28.
- Rauter, R. M. 1970. Rooting of cuttings from the *Picea* genus. *Abstract in* First North American Biology Workshop, Michigan.
- Zufa, L. 1969. Polyploidy induction in poplars. *In Proc.* 11th Meeting Comm. Forest Tree Breeding in Canada. II: 169-174.

- Zufa, L. 1969. Current work of the tree breeding unit. *In* Proc. 11th Meeting Comm. Forest Tree Breeding in Canada, II: 175-182.
- Zufa, L. 1970. Variation in rooting ability of *Pinus strobus* L. and *P. griffithii* McClelland x strobus L. Abstract in First North American Biology Workshop, Michigan.

The following mimeographed reports are available on request:

- Rauter, R. M. 1970. Spruce breeding at the Southern Research Station, Maple, Ontario. Proc. 12th Meeting Comm. Forest Tree Breeding in Canada. 9 p.
- Zufa, L. 1970. Summary report on poplar and pine breeding in 1968 and 1969. Proc. 12th Meeting Comm. Forest Tree Breeding in Canada. 19 p.

WILDLIFE SECTION

- Adorjan, A. and G. Kolenosky. 1790. Identification of hairs of selected Ontario mammals. Ont. Dep. Lands & Forests, Res. Branch, Tech. Ser. Res. Rep. (Wildlife) No. 90. 64 p.
- Lumsden, H. G. 1970. The shoulder spot display in grouse (Tetraonidae). *In* The Living Bird. Ninth Annual, Cornell Laboratory of Ornithology.

The following mimeographed reports are available on request:

- Addison, R. 1970. Moose and caribou surveys, winters 1968-69 and 1969-70. *In* Indian Development Study in Northwestern Ontario: The Land and Resources of the Round Lake Ojibwa, Part II, Chap. 5.
- Standfield, R. 1970. Some considerations on the taxonomy of wolves in Ontario. Proceedings of a Symposium on Wolf Management in Selected Areas of North America. Thirty-fifth N.A. Wildlife and Natural Resources Conference, Chicago, Ill. March 24, 1970.
- Standfield, R. and H. Smith. 1970. Beaver populations and habitat in the Round Lake Band Area. *In* Indian Development Study in Northwestern Ontario: The Land and Resources of the Round Lake Ojibwa, Part II, Chap. 6.

DIRECTOR

- Henson, W. R., L. C. O'Neil and F. Mergen. 1970. Natural variation in susceptibility of *Pinus* to *Neodiprion* sawflies as a basis for the development of a breeding scheme for resistant trees. Yale School of Forestry Bull. 78. Yale Univ. Press. 71 p.
- Schein, R. D., R. B. Platt, W. R. Henson and R. H. Shaw. 1970. Analysis of basic ecological research in the United States, 1966-67. Bioscience 20: 401-404.



Timber Branch is divided into two sections and their subordinate units, and one separate unit, with duties and responsibilities as follows.

TIMBER PRODUCTION SECTION

Silviculture Unit: Establishment and treatment of forest crops on Crown lands and Agreement Forests, and on private lands under The Woodlands Improvement Act agreements; collection, processing, storage, distribution and improvement of tree seed; production and improvement of planting stock; and development of new equipment and techniques.

Advisory Services Unit: Development and direction of an active forest extension program on private lands; administration of forestry agreements with private landowners; administration of Agreement forests; administration of regeneration agreements with licensees on Crown lands; distribution of nursery stock; assessment of silvicultural programs; and editorial and administrative services for Branch publications.

TIMBER SALES SECTION

Forest Resources Inventory Unit: Continuing program of forest re-inventory on Crown lands; preparation of maps and compilation of reports for Crown Management Units; co-operative forest inventories on Company Management Units; preparation of contour plans for Provincial Parks; and air photo library and map photo service.

Management Planning Unit: Supervision of management plan preparation; preparation of planning manuals and volume tables; and direction of access roads programs.

Licensing and Finance Unit: Issuance and control of timber licences; measurement of timber cut on Crown lands and Agreement Forests; development of new methods of measurement; licensing and registration of scalers; and preparation of scaling returns.

FOREST ECONOMICS UNIT

Mill licensing; analysis of the economics of timber production, transportation and marketing; promotion of industrial expansion; and preparation of industry directories and regional reports of timber availability.

A stand of 75-year-old red pine, Kenora Forest District. Photo by R. Johnson.

TIMBER PRODUCTION SECTION

SILVICULTURE, UNIT

The silvicultural operations of the Unit include the regeneration and tending of forests on Crown lands, on lands managed under agreements such as Township, County and Conservation Authority Forests, and on lands managed under The Woodlands Improvement Act.

Forests may be regenerated by natural or artificial means. Site preparation is usually necessary to disturb the forest floor and top soil, creating more suitable conditions for natural regeneration, seeding or planting. Site preparation also promotes better survival and growth.

In natural regeneration, the forest crop is renewed by self-sown seed. Site preparation is done adjacent to a seed source, or the harvest system may be modified with the retention of strips of green timber or seed trees to provide the seed.

Artificial regeneration may involve the site preparation of large areas for planting or seeding. Nursery stock is planted by machine or by hand. Container stock is planted by hand. Direct seeding may be done from the air or from the ground.

Tending includes treatments such as cleaning, herbicide spraying for release, thinning, improvement cutting, and pruning during the life of the forest.

While the Department, directly or indirectly, supervises all silvicultural activities on Crown lands, regeneration agreements have been signed with all major licensees whereby they may assume direct responsibility for approved planting projects. The companies receive payment at an agreed rate for work completed. Similarly, other projects, such as site preparation, may be performed by the companies. Under these agreements, 6,246,800 trees were planted on 12,437 acres in 1970-1; 17,580 acres were site-prepared; and a modified harvest cut was made on 1,359 acres.

	Acres
Average Annual Cutover, 1967-70	371,600
Average Area regenerated without silvicultural treatment, 1967-70	143,800
Area regenerated by silvicultural treatment, 1970-71	123,100

SEED COLLECTION

The inventory of forest tree seed in storage at the Ontario Tree Seed Plant at Angus, as of June 1, 1970, was about 2,420,000,000 viable seeds of 51 species, weighing 469,000 ounces, or over 14½ tons, and valued at approximately \$450,000. The year 1970 was a good crop year for pines and a number of other species, but only a low, medium crop for spruce.

1970 SEED CROP Species	Bushels Collected
White Pine	562
Red Pine	8,250
Jack Pine	7,510
Scotch Pine	222
Black Spruce	775
White Spruce	1,266
Black Walnut	5,975
Other Species	440
TOTAL	25,000

Seed Distribution. A total of 853,000,000 viable seeds was supplied from storage to carry out 131 seeding projects in the Province during 1970. This seed goes into three main programs — direct seeding, nursery stock production, and container stock production.

TREE IMPROVEMENT

Through application of the scientific principles of forest genetics, we are improving the quality and increasing the

Management foresters describe and demonstrate treepruning techniques at forestry field day held for W.I.A. quantity of available seed. Our approaches include the selection of additional "plus trees," the development of seed production areas, and the planting of grafted trees in seed orchards. The program is concerned mainly with white pine, red pine, jack pine, white spruce, black spruce and red spruce.

During the year, we collected 5,000 scions from "plus trees"; these were grafted at our co-operating nurseries. A total of 55.5 acres of seed produciton area was thinned, released or improved in other ways. The planting of 1,400 grafted trees was completed on 8.0 acres of seed orchard. A collection of 532 bushels of cones was made from seed production areas.

As of March 31, 1971	Number	Acres
Seed Production Areas	29	365.7
Seed Orchards	11	107.5

NURSERY SOIL MANAGEMENT

Soil management is primarily concerned with the collection of soil and plant samples from ten nurseries, evaluation of the chemical and physical analyses, interpretation of the analytical results into meaningful terms, and making the fertilizer recommendations for the next growing season. Also, our objective is to describe the relationship which exists between plant growth and the input of a particular nutrient. High soil fertility must be maintained if sustained maximum efficiency in crop production is to be realized.

Nutrient deficiencies are corrected by designing and conducting experiments and trials in which the known limiting growth factors are evaluated and overcome. It is important

agreement holders at Limerick County Forest, June, 1970. Photo by W. D. Marshall.



to calibrate test results with the crop responses and make soil amendment recommendations of these test results. During the year, 474 soil samples and 461 plant samples were analyzed for chemical composition and physical properties.

Herbicides are being tested constantly. When a new technique in weed control proves effective in nursery practice, it is applied. Disease and nutrient studies are also being carried out on a co-operative basis with staff of Research Branch, Canada Department of the Environment, and the University of Toronto.

SILVICULTURAL DEVELOPMENT

The urgent need for mechanization of silvicultural activities directed the main effort in this field towards the development and testing of new silvicultural equipment.

A prototype model of a new planting machine for use in Boreal Forest Regions of the Province was built and tested. Also, plans were prepared for a new multi-row, nursery stock harvester. The prototype model is expected to be built during the current year.

In addition to the development of new equipment by the Department, evaluation studies began on commercially built equipment. One planting machine has already been tested under the joint Federal-Provincial program, and three additional units have been acquired for testing next season.

Work continued in the interprovincial fertilization program with the establishment of eight installations in the northern part of the Province this summer.

SPECIAL PROJECTS

Junior Rangers. During July and August, the Department employs 17-year-old students under the Junior Forest Ranger Program. Some of these students spent part of their time doing work for Timber Branch. About 17,800 man-days were devoted to cone collection, nursery work, tree planting and forest tending.

Correctional Forestry Camps. The Department supplied technical guidance for forestry programs carried out by seven forestry camps operated by the provincial Department of Correctional Services and the Beaver Creek Correctional Camp operated by the federal Department of Justice. The seven provincial camps provided a total of 20,761 man-days of labour for the Department. The men cleared road right-of-ways, camp sites, fireguards and compartment boundaries; collected cones and burned brush; planted, pruned and thinned trees; and worked on cull tree removal projects and projects to provide improved habitats for wildlife. The men from the federal camp worked 3,321 man-days.

SILVICULTURAL OPERATIONS, 1970-1

	Crown Lands	Agreement Forests	Total Acreage
Regeneration			
a) Natural			
—by site preparation—by modified harvest	14,293	_	14,293
cutting	6,664	_	6,664
—by seed tree system	4,227	_	4,227
b) Artificial			
direct seeding			
—ground	5,377	, —	5,377
—aerial	15,934	—	15,934
Planting			
—nursery stock	68,553	2,942	71,495
—tubed seedlings	8,086	_	8,086
Total Regeneration	123,134	2,942	126,076
Tending			
Hand cleaning	8,078	1,128	9,206
Herbicide spraying	16,701	335	17,036
Thinning, improvement			
cutting	5,742	2,564	8,306
Girdling, frilling,			
poisoning	5,060	531	5,591
Marking for improvement			
cut	18,771	109	18,880
Pruning	3,722	2,073	5,795
Fertilization, drainage	1,177	—	1,177
Total Tending	59,251	6,740	65,991
Fotal Area Treated	182,385	9,682	192,067
Site Preparation			

	Crown Land		Agreement Forests	Private Lands	Other	
Forest District	Nursery Contains Trees Stock	Container Stock	Nursery Trees	Nursery Trees	Nursery Trees	Total Trees
Chapleau	3,298,500	244,000				3,542,500
Cochrane	2,828,000	152,000		29,300		3,009,300
Fort Frances	1,636,900	315,700		249,975		2,202,575
Geraldton	7,058,600	99,000				7,157,600
Kapuskasing	5,128,000	280,800				5,408,800
Kemptville	260,300		1,371,100	2,584,200		4,215,600
Kenora	2,440,700			187,400		2,628,100
Lake Erie	100,000		11,000	1,410,671		1,521,671
Lake Huron	27,200		248,200	3,530,332		3,805,732
Lake Simcoe	,		431,300	2,938,520		3,369,820
Lindsay	130,000		47,000	1,759,294		1,936,294
North Bay	2,146,000	411,000		69,325		2,626,325
Parry Sound	666,600			606,225		1,272,825
Pembroke	2,692,000	433,000	82,000	653,000		3,860,000
Sault Ste. Marie	2,385,300	799,300		92,325		3,276,925
Sioux Lookout	1,598,700	96,900				1,695,600
Sudbury	5,271,200	533,200		262,225		6,066,625
Swastika	5,228,300	2,221,500		6,550		7,456,350
Thunder Bay	3,651,800	502,800		276,275		4,430,875
Tweed	865,500		144,100	1,684,250		2,693,850
White River	1,585,500	714,300				2,299,800
Unclassified	246,555				246,555	246,555
TOTAL	48,999,100	6,803,500	2,334,700	16,339,867	246,555	74,723,722

ADVISORY SERVICES UNIT

PRIVATE LAND FORESTRY

The intent of the private land forestry policy is to improve the management of privately-owned forest land. Ultimately, the benefits of this improvement will be an increased flow of better-quality logs and other products for wood-using industries and greater returns to woodland owners. The private land forestry program provides a free advisory service to landowners on the planning and establishing of plantations and the tending and marketing of forest crops.

Forestry Extension Activities included the following during the past year.

Conducted tours for school groups and others at the forest tree nurseries and the Ontario Tree Seed Plant. Approximately 9,000 school children participated.

Instructional tours for landowners with agreements under The Woodlands Improvement Act.

Co-operation in the preparation and manning of exhibits at the C.N.E., the Ottawa C.C.E.A., the London Fair and the Royal Winter Fair. Districts prepared and manned over 60 exhibits at local fairs and exhibitions.

Co-operation with the Ontario Department of Agriculture and Food in providing guidance to the Ontario Maple Syrup Producers' Association.

Revision and production of publications required to interest and instruct landowners in essentials of private land forestry.

THE WOODLANDS IMPROVEMENT ACT

Under The Woodlands Improvement Act, 1966, landowners may enter into agreements with the Minister for improve-

ment of their lands through tree planting and rehabilitation of existing woodlands. Department staff plant trees and carry out stand improvement in accordance with mutually agreed upon plans at no cost to the owner. The owner pays for the nursery stock and agrees to protect his woodland.

The total number of agreements in effect March 31, 1971, was 1,925, comprising a total area of 112,072 acres.

AGREEMENT FORESTS

Section 2 of The Forestry Act authorizes the Minister to enter into agreements with the owners of lands suitable for forestry purposes for the management of such lands, and to make grants to any conservation authority or to any municipality to encourage and assist it in the acquisition of lands that are to be managed under such an agreement.

A total of \$164,142.89, to assist with the acquisition of 8,046.96 acres of land, was paid during the year. Canada will contribute \$53,328.37 of the foregoing amount to Ontario under an agreement made between Canada and Ontario pursuant to their respective A.R.D. Acts.

TREES CONSERVATION

Under authority of The Trees Act, and with the approval of the Minister of Lands and Forests, counties or municipalities in territorial districts may pass by-laws with respect to private lands to restrict and regulate the destruction of trees by cutting, burning or other means. Such by-laws have been passed by the following municipalities.

Counties: Brant, Bruce, Dufferin, Elgin, Grey, Haldimand, Halton, Hastings, Huron, Lambton, Leeds and Grenville, Lincoln, Middlesex, Norfolk, Northumberland and Durham, Oxford, Peel, Perth, Renfrew, Waterloo, Welland, Wellington, and Wentworth.

Townships: Brunel and Hudson.

PRODUCTION TARGET Species	Number of Trees
White Pine	6,325,000
Red Pine	16,113,000
Jack Pine	10,494,000
Scotch Pine	1,563,000
White Spruce	39,169,000
Black Spruce	18,808,000
Other Species	5,715,000
TOTAL	98,187,000

TREE DISTRIBUTION

To meet the demand for planting stock, sufficient seed is sown at ten forest tree nurseries for the production of 98,187,000 trees by 1973.

PRODUCTION TARGET District) Nursery	Number of Trees
Chapleau	Chapleau	2,000,000
Kemptville	Kemptville	12,228,600
Kenora	Dryden	13,983,000
Lake Erie	St. Williams	7,373,500
Lake Simcoe	Midhurst	13,898,000
Lindsay	Orono	9,075,900
Sault Ste. Marie	Thessalon	1,675,000
Sudbury	Gogama	2,000,000
Swastika	Swastika	17,910,000
Thunder Bay	Thunder Bay	18,043,000
TOTAL		98,187,000

A demonstration of tree planter at forestry field day held for W.I.A. agreement holders in Simcoe County, October, 1970. Photo by C. Van Gemerden.



SUMMARY OF THE FOREST ADVISORY AND ASSISTANCE SERVICES PROVIDED TO PRIVATE LANDOWNERS AND ORGANIZATIONS, 1970-1

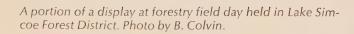
Total number of inquiries received		19,600
Number of field inspections made		4,404
(a) to advise on planting	1,767	
(b) to advise on forest management	865	
(c) to advise on maple syrup and Christmas trees	97	
(d) for miscellaneous purposes e.g. insects, windbreaks	1,675	
Number of management programs prepared	100	577
(a) advisory services programs (b) Woodlands Improvement Act programs	182 395	
Total number of acres of private forest land for which management plans	333	
were prepared		29,371
(a) advisory services programs	5,984	23/37
(b) Woodlands Improvement Act programs	23,387	
Total number of trees planted on private lands		16,339,867
(a) advisory services programs	9,888,842	
(b) Woodlands Improvement Act programs	6,451,025	
Total number of acres of forest land treated during the year under The		
Woodlands Improvement Act	0.604	15,449
(a) reforestation(b) Woodlands improvement	8,681 6,768	
	0,700	
Total volume of timber marked under the advisory services program	1,115,500 cu. ft.	
(b) pulpwood	3,700 cords	
Activities with youth groups — total number of groups	- /	318
(a) 4H Forestry Clubs	21	310
(b) 4H Conservation Clubs	13	
(c) Resource Rangers	7	
(d) Other Groups — Boy Scouts, Girl Guides, etc	277	
Public Education activities		1,218
(a) newspapers — articles	216	
paid advertisements	8 50	
(c) number of field days and tours	363	
(d) meetings with municipal or conservation authority officials	288	
(e) number of demonstration areas established	6	
(f) number of exhibits arranged	57	
(g) miscellaneous	230	
Hours spent on forestry instruction	27	109
(a) University of Guelph(b) Lakehead University	26 15	
(c) Kemptville College of Agricultural Technology	50	
(d) Ridgetown College of Agricultural Technology	6	
(e) Sir Sandford Flemming College	8	
(f) Cambrian College	2	
(g) St. Mary's College	2	

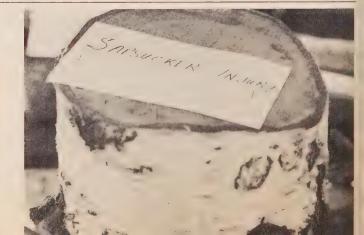
AGREEMENTS UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1971

Agreement With	Date of Agreement	Acres Added 1970-1	Total Acres	
C. I. C. I. C. I.				
Government of Canada	4 45 4064		2 (22 00	
National Capital Commission	Aug. 16, 1961	_	3,632.00	
Conservation Authorities				
Ausable River	Dec. 13, 1951	_	4,299.00	
Catfish Creek	Dec. 19, 1962		501.00	
Central Lake Ontario	Sept. 24, 1963		195.00	
Crowe Valley	Aug. 21, 1963	_	200.00	
Ganaraska Region	Jan. 31, 1947		8,548.60	
Grand River	Mar. 18, 1952		5,866.37	
Hamilton Region	Oct. 19, 1962	_	12.50	
Lakehead Region	May 15, 1958		1,256.70	
Long Point Region	Dec. 2, 1954	192.83	5,566.23	
Lower Thames Valley	Aug. 12, 1964	_	300.00	
Maitland Valley	Apr. 1, 1955		949.00	
Metropolitan Toronto and Region	Apr. 11, 1951		1,928.00	
Moira River	Nov. 28, 1951		16,497.00	
Napanee Valley	Oct. 28, 1954	_	6,666.00	
Niagara Peninsula	June 6, 1963		186.00	
North Grey Region	June 25, 1958		7,255.00	
Otonabee Region	May 15, 1963	400.00	2,220.00	
Sauble Valley	Sept. 29, 1959	—	3,816.00	
Saugeen Valley	Dec. 15, 1952	50.00	13,623,00	
South Nation River	Mar. 28, 1960	1,413.00	3,842.80	
Sydenham Valley	July 13, 1965		150.00	
Upper Thames River	Apr. 11, 1951	-	3,444.36	
Counties				
Brant	Nov. 15, 1952	_	50.00	
Bruce	Jan. 20, 1950	_	15,533.35	
Dufferin	Nov. 26, 1930	_	2,405.00	
Grey	Dec. 21, 1937		8,378.08	
Halton	Mar. 14, 1950	—	1,498.63	
Huron	Nov. 27, 1950	_	1,439.00	
Kent	Dec. 23, 1953	<u> </u>	75.39	
Lanark	July 5, 1940	1,591.00	5,721.00	
Leeds and Grenville	Apr. 24, 1940	385.00	11,561.00	
Lennox and Addington	Apr. 3, 1952	_	1,186.00	
Middlesex	Mar. 8, 1954	_	1,793.90	
Northumberland and Durham	June 10, 1924	15.63	5,834.63	
Ontario	July 9, 1930	400.00	5,041.00	
Oxford	Sept. 1, 1950	_	716.56	
	Mar. 15, 1937	257.00	25,509.93	
Prescott and Russell	IVIal. 13, 1337	237.00	20,000,00	

AGREEMENTS UNDER SECTION 2 OF THE FORESTRY ACT, AS OF MARCH 31, 1971 (continued)

Agreement With	Date of Agreement	Acres Added 1970-1	Total Acres	
Simcoe	June 19, 1925	562.50	22,145.24	
Stormont, Dundas and Glengarry	Sept. 20, 1949	1,045.00	3,611.45	
Victoria	Aug. 10, 1928		8,319.00	
Waterloo	Apr. 17, 1950		710.48	
Wellington	June 18, 1964		1,100.00	
Wentworth	Nov. 27, 1952	_	989.30	
Regional Municipalities				
Ottawa-Carleton	July 30, 1964	330.00	1,160.00	
York	Mar. 27, 1924	100.00	4,825.08	
Townships				
Bonfield	Apr. 1, 1952		60.00	
Charlottenburgh	Apr. 1, 1955		175.00	
Cramahe	Jan. 4, 1964		162.00	
Cumberland	May 29, 1952		808.44	
Darlington	Aug. 19, 1964		140.00	
Galway and Cavendish	Nov. 1, 1952	_	619.00	
Machar	Dec. 30, 1963	—	90.00	
Marlborough	Nov. 21, 1953		200.00	
Mosa	July 16, 1964		144.00	
Torbolton	Mar. 28, 1953	—	430.80	
Williamsburg	Oct. 19, 1962	_	400.00	
Summary				
1 Government of Canada		_	3,632.00	
22 Conservation Authorities		2,055.83	87,322.56	
22 Counties		5,561.13	138,229.94	
11 Townships		-	3,229.24	
2 Regional Municipalities		430.00	5,985.08	
58 Totals		8,046.96	238,398.82	





DISTRIBUTION OF NURSERY STOCK AND CONTAINER STOCK, 1970-1

		*	Nursery Stock				Container	
				Educational			Stock	
Species	Private Lands	Crown Lands	Agreement Forests	or Scientific	Miscel- laneous	Sub-Total	Crown Lands	Total Trees
White Pine	2,195,577	4,596,700	240,700	32,576		7,065,553	621,200	7,686,753
Red Pine	5,900,850	4,516,175	698,500	876		11,116,401	945,700	12,062,101
Jack Pine	532,950	12,293,925	204,200	726		13,031,801	2,844,700	15,876,501
Scotch Pine	1,479,325	7,950		351	1,100,000	2,587,626		2,587,626
White Spruce	3,959,000	16,821,465	1,078,700	2,126		21,861,291	393,300	22,254,591
Black Spruce	84,725	11,786,374		75		11,871,174	1,961,000	13,832,174
Norway Spruce	507,675	8,100		426		516,201		516,201
Red Spruce	375	351,525		25		351,925		351,925
White Cedar	233,500	4,225		101		237,826		237,826
European Larch	148,625	36,275		26		184,926		184,926
Tamarack	65,375	7,500		251		73,126		73,126
White Ash	63,825	675		100		64,600		64,600
Red Oak	169,400	20,875		351		190,626		190,626
Silver Maple	237,650	26,225		851		264,726		264,726
Carolina Poplar	311,775	52,450		426		364,651		364,651
Black Locust	100,150	775		1		100,926		100,926
Black Walnut	269,600	2,000		125		271,725		271,725
Other	79,490	123,137	112,600	2,551		317,778	37,600	355,378
TOTAL	16,339,867	50,656,351.	2,334,700	41,964	1,100,000	70,472,882	6,803,500	77,276,382

^{*}Includes nursery stock furnished to all provincial government departments and 2,290,200 trees purchased from Kimberly-Clark Pulp and Paper Company Limited and Spruce Falls Power and Paper Company, Limited, under Regeneration Agreements with the Province of Ontario.

DISTRIBUTION OF NURSERY STOCK FROM DEPARTMENT TREE NURSERIES

V P 14 L 24	D. C. L. L.	Crown Land	0.1	Total
Year ending March 31	Private Land	Agreement Forests	Other	Trees
1962	11,505,775	31,666,580	22,508	43.194.863
1963	9,597,300	33,958,451	212,165	43,767,916
1964	9,016,400	34,752,240	154,045	43,922,685
1965	10,791,980	38,551,572	140,516	49,484,068
1966	11,312,900	34,481,899	3,225,055	49,019,854
1967	9,542,325	41,839,242	330,894	51,712,461
1968	10,219,517	44,248,398	337,255	54,805,170
1969	11,956,165	40,183,862	17,123	52,157,150
1970	14,246,964	47,365,642	1,010,890	62,623,496
1971	16,339,867	50,700,888	1,141,964	68,182,719

TIMBER SALES SECTION

FOREST RESOURCES INVENTORY UNIT

Aerial photography was completed on 9,420 square miles covering parts of the Forest Districts of Cochrane, Swastika, Sudbury and North Bay during the past year.

In the re-inventory program, field work was carried out on 4,000 square miles in the Management Units of Ranger Lake, Wenebegon, Peshu and Chapleau Working Circle II in the Sault Ste. Marie and Chapleau Districts.

Forest stand maps and tabulated inventory data were completed on 13,877 square miles. This data covered the Management Units of Berens River and Lake St. Joseph Working Circle No. 1 in the Sioux Lookout District.

The Multiplex machine was used to plot the contour and form lines of three Provincial Parks covering 3,900 acres.

The photo processing unit produced 90,600 contact prints, 3,077 mosaics, 5,557 enlargements, 607 diapositives, 757 copy negatives and 4,694 square feet of repropositives.

GROSS VALUE OF PHOTO PROCESSING PRODUCTION

Year	Cash Receipts	Department Work	Total
1967-68	 \$53,270.95	\$30,842.42	\$ 84,113.37
1968-69	 63,451.15	51,258.79	114,709.94
1969-70	 79,280.06	53,496.76	132,786.82
1970-71	 67,342.68	36,081.64	103,424.32

MANAGEMENT PLANNING UNIT

The development of forest areas is based on management plans that provide detailed information about the volume of annual cut, cutting methods, regeneration treatments, road and camp locations, and other facts essential to orderly management.

Standard management plans are based on inventory data gathered using photo interpretation, point sampling, and computer compilation methods. The information is entered

in stand ledgers, which also serve as a record of changes. Standard plans have been prepared following the re-inventory of Crown management units started in 1958. The essentials of this type of planning are contained in the Manual of Management Plan Requirements.

The initial management plans, based on the inventory method used prior to 1958, are retained until replaced with standard plans, and form the basis for the management of a large proportion of the Crown management units in the Province.

Management plans form a framework into which operating plans are fitted. An operating plan shows in detail the stands to be cut, regenerated, and tended, and the roads to be built and other improvements to be made to carry out operations on the management units.

Crown Management Units. 87 units have an area of 102,738 square miles; 79 management plans have been prepared by Department staff.

33	standard management plans in force	23,483 sq. mi.
14	plans being processed for	
	Ministerial approval	12,069 sq. mi.
32	initial management or	
	operating plans in force	39,166 sq. mi.
8	management units not under plans	28,020 sq. mi.

Company Management Units. 57 units have an area of 89,985 square miles, under licence to 38 companies; 57 management plans have been prepared by the licensees.

29 approved management plans	35,985 sq. mi.
11 plans being processed for	
Ministerial approval	11,244 sq. mi.
17 plans being revised or prepared	42,756 sq. mi.

Agreement Forest Units. 60 units have an area of 360 square miles (230,351 acres); 60 management plans have been prepared by Department staff.

20 approved standard plans	103,397 acres
13 plans being processed for	
Ministerial approval	40,108 acres
27 plans in process of preparation	84,846 acres

ACCESS ROADS

A total of 107.8 miles of new roads was constructed, and 117.3 miles of existing roads were improved during the fiscal year. Road work was carried out under two categories.

1. Logging Access Roads are primarily designed for the extraction of timber products. The costs of the roads are recovered over a five-year period through an increase in

stumpage rates on the timber which has been made accessible. 9.0 miles of new roads were built, and 7.0 miles were improved.

2. Forest Access Roads are built for a variety of purposes such as timber extraction, forest improvement, forest protection, hunting and fishing research, and other forest uses. 98.8 miles of new roads were built, and 110.3 miles were improved.

SCALING

Scaling is carried out in the Province to determine quantities of wood cut from Crown lands and Agreement Forests for revenue, for forest management, and for statistical analyses of economic conditions and trends in the wood-using industries.

Continual attention to the fast-changing techniques of cutting and moving wood from the stump to the mill has encouraged and brought about new concepts of wood measurement. These resultant changes have, as well, been directed towards speeding up and simplifying scaling operations at a minimum cost, while retaining control over the movement of wood. The most promising of the new wood measurement methods are tree-length scaling, weight scaling, and sample scaling.

Computer analysis of scaling data and preparation of Crown charges accounts is now effective across the Province and is the basis of a monthly billing system.

For many years, Crown timber in the Province has been measured by licensed scalers. Such a task has not been without its difficulties. The physical extent of forest operations, the variety of forest products harvested, and the many methods used to harvest timber highlight the problems facing the Department in using uniform wood-measurement practices for Crown timber throughout the Province.

This uniformity has been achieved through a detailed definition of the scaling practices to be used, and standards to be observed, in measuring Crown timber and the requirement that all persons desiring to measure Crown timber must prove their competence before being licensed to scale.

The detailed definition of current wood measurement practices and standards have been published during the year in an up-dated, sixth edition of the "Manual of Scaling Instructions."

Scaling examinations were held at Huntsville, May 22, 1970, and Pembroke, September 25, 1970. A total of 66 new scalers were licensed at the two courses, and 236 licences were renewed for a three-year period.

Demonstrating the use of a mobile cone picker tower at Maple. Photo by B. Colvin.



CROWN TIMBER SALES, 1970-1	Square Miles
New Licences issued under	
Section 2 C.T.A	12.6
New Licences issued under	
Section 3 C.T.A	2,117.0
New Licences issued under	
Section 5 C.T.A	55.6
TOTAL	2,185.2
Abandonments: Licensed areas in the amount of square miles were abandoned.	f 6,814.3

AREAS UNDER CROWN TIMBER LICENCE

Areas in square miles, March 31

Year	Licences under Section 2	, Licences under Section 3	Licences under Section 5	Total Area
1967	 2,006.5	104,269.9	nil	106,276.4
1968	 1,704.2	104,134.6	74.0	105,912.8
1969	 1,664.7	101,924.3	74.0	103,663.0
1970	 1,497.6	98,661.9	115.8	100,275.3
1971	 302.7	95,201.3	142.2	95,646.2

Clearing brush in Larose Forest. Photo by B. Colvin.



VOLUME AND VALUE OF WOOD CUT FROM AGREEMENT FORESTS, 1970-1

	Volume	Value
Sawlogs (cu. ft.)	95,474.09	\$11,267.64
Poles, Posts (cu. ft.)	11,668.24	1,786.15
Pulpwood (cords)	12,128.57	37,337.78
Fuelwood (cords)	1,445.29	3,254.79
Miscellaneous		3,744.60
Total (cu. ft.)	1,260,920.43	\$59,074.03

VOLUME AND VALUE OF WOOD CUT FROM CROWN LAND, 1970-1

Species	Volume Cu. Ft.	Stumpage Value
Softwoods		
White Pine	11,672,861.65	800,163.70
Red Pine	3,766,555.39	242,439.39
Jack Pine	115,283,569.80	2,982,329.66
Scots Pine	14,020.75	247.42
Pine — all	13,961.71	566.32
White Spruce	1,949,313.67	67,641.18
Black Spruce	14,290,202.94	495,870.05
All Spruce	187,646,325.60	.6,763,417.34
Hemlock	1,519,211.56	40,457.90
Balsam	11,464,498.30	239,737.12
Cedar	147,568.15	5,764.59
Tamarack	11,249.93	279.08
Conifers	243,150.28	5,861.75
Total	348,022,489.73	\$11,644,775.50
Hardwoods		
Maple	4,806,908.49	283,889.52
Yellow Birch	4,058,534.72	413,491.23
White Birch	1,669,050.70	37,031.45
Oak	241,918.21	15,244.17
Beech	217,653.27	7,252.24
Ash	32,749.50	1,806.18
Elm	133,180.77	7,392.08
Basswood	261,702.11	20,398.21
Butternut	172.71	9.24
Black Cherry	18,975.04	872.41
Poplar	21,338,148.40	215,280.95
Hardwood	14,983,384.15	181,913.01
Total	47,762,378.07	\$ 1,184,580.69
Total Wood Cut	395,784,867.80	\$12,829,356.19

FOREST ECONOMICS UNIT

Four major factors limited Canada's economic potential during the past year. The first was the economic recession in the United States which adversely affected Canada's growth and labour force performance during 1970. Canada's increase of real output was only 3.3 per cent in 1970 compared to a 4.9 per cent average annual rate for 1960-1970.

The second factor was the appreciation of the Canadian dollar, which was floated on the world's money market as of May 31, 1970, and again had limiting consequences for economic growth, employment, and the profit position of export-oriented industries, such as the Canadian pulp and paper industry. Unemployment was at its highest level since the early 1960s, and corporate profits were at their lowest since the Second World War.

The third major factor was the spiralling and widespread inflation which had engulfed so many of the world's industrialized nations during the past several years and that had hindered Canada's ability to bring its own inflation problem under control. Stringent anti-inflationary measures, resulting in tight-money conditions, did undermine the nation's economic activity, but a decrease in the rise of consumer goods prices was achieved.

The last factor to be mentioned is the continued deterioration of the stability of the international financial system. In the event of failure to resolve basic foreign exchange difficulties, this erosion would have strong implications for the future viability of international trade and balance of payments arrangements. All of these factors are international in scope, and only the repegging of the Canadian dollar, relative to the United States dollar, could be controlled within Canada's political sphere.

The Ontario forest products industry is an important integrated segment of the Canadian economy to the extent that it grows or declines in line with the national economy. Just as the economy of Canada experienced severe pressures during the 1970-1 fiscal year, so, too, did the provincial forest products industry. The international economic conditions described above had serious consequences upon the performance of the domestic forest products industry as indicated by several of their selling price indexes.

Veneer and plywood prices remained fairly steady throughout the fiscal year, and by the first quarter of 1971 they showed some signs of recovering the ground lost during their dramatic price decline experienced in the latter half of 1969.

Saw mill and planing mill product prices, similarly, remained relatively low, but were consistent during the latter three-quarters of 1970. However, financial outlays for housing, the major consumer of these products, turned up sharply towards the end of 1970 and continued into 1971 increasing the demand and, in turn, the price levels of saw mill products. In 1970, there was a 9.5 per cent decrease in the number of dwelling starts in Canada as compared to the preceding year, but the removal of certain monetary restraints and the lowering of the prime interest rate, coupled with the expanded federal and provincial government housing programs, began to improve the market condition for the saw mill and planing mill industry by the first quarter of 1971.

The lumber output of Ontario saw mills during 1970 was down approximately four per cent over the previous year for softwoods, and hardwood lumber production declined by almost 13 per cent when compared to 1969 production.

In contrast, the production of pulp chips from saw mill waste material reached a total of 773,871 bone dry tons in 1970 which represents an increase of almost 74,000 tons, or 10.5 per cent for the year. While the pulp chip production graph for the 1960-68 period corresponded very closely to a 19 per cent compound interest curve, this rate has since decelerated, and the earlier anticipation of reaching the one-million-ton production mark during 1972 may not be realized.

The export-oriented pulp and paper industry suffered heavily because of the unpegging of the Canadian dollar. Due to the ensuing appreciation of the Canadian dollar, relative to United States currency, this decision resulted in an immediate seven per cent decrease of revenues for pulp and paper firms selling in United States markets. Furthermore, Canadian pulp and paper shipments to the United States dropped by almost 10 per cent for some months immediately ensuing the unpegging, thus decreasing these shipments by almost two per cent for the year.

The world market for pulp and paper products softened once again, while domestic production rates dropped by approximately 10 per cent to almost 80 per cent of rated capacity. Another consequence of the unpegged dollar was that the Canadian pulp and paper industry was no longer able to compete in certain market areas of the United States.

The Forest Economics Unit is fundamentally concerned with economic analyses pertaining to the production, utilization, and marketing of timber and its products. Its other functions include the promoting of the provincial forest products industry, the gathering and compiling of certain

forest products industry information, and the developing of the Timber Branch library. The Unit, also, performs a service function by providing advice and information relating to forest products industry development to other government agencies and private firms or individuals.

SELLING PRICE INDEXES $(1961 = 100)^*$

Year	Month	Veneer and Plywood Mills	Saw Mills and Planing Mills	Pulp and Paper Mills
1970-	–April	126.3	122.6	118.7
	May	128.6	123.1	118.7
	June	129.2	122.5	116.2
	July	127.5	121.3	116.6
	August	123.8	123.1	115.6
	September	127.5	123.8	114.9
	October	129.2	121.8	115.6
	November	129.8	120.3	115.7
	December	131.0	119.5	115.1
1971-	—January	132.3	122.0	115.1
	February	133.8	129.4	114.7
	March	136.7	135.0	114.8

^{*}Source: Statistics Canada, Prices and Price Indexes (62-002).

LICENSING OF MILLS

Mills licensed under The Crown Timber Act, Section 45, are distributed as shown in the following table. The trend toward fewer primary mills still continues.

Licensed Mills	1968	1969	1970
SAW MILLS			
Lumber capacity over 50 M fbm	27	31	30
Lumber capacity 10 to 50 M fbm	101	92	89
Lumber capacity under 10 M fbm	593	596	583
Miscellaneous sawn products	99	96	104
VENEER MILLS	29	30	28
PULP MILLS	25	24	24
TOTAL	874	869	858

LUMBER PRODUCTION BY ONTARIO SAW MILLS (in millions of foot-board measure)

Administrative Region	Spruce, Balsam and Jack Pine	Red and White Pine	Other Soft- woods	Total Soft- woods	Birch	Elm	Maple	Other Hard- woods	Total Hard- woods	Mining Timber, Ties, etc.	Grand Total
Northwestern	173.8	2.8		176.8	1.2			1.6	2.9	18.6	198.3
Northeastern	274.9	46.4	0.8	322.4	19.0	0.6	14.6	5.5	39.5	18.6	380.6
Southern	4 6 -	83.9	23.8	124.4	12.0	23.1	78.4	43.6	156.8	11.1	292.5
TOTAL, 1970	465.5	133.2	24.8	623.6	32.2	23.6	93.0	50.0	199.5	48.4	871.6
TOTAL, 1969	462.9	155.1	31.3	649.3	42.4	32.8	104.1	49.3	228.6	73.9	951.8
TOTAL, 1968	443.2	176.0	25.4	644.5	43.8	23.6	103.3	51.4	222.1	54.8	922.2

(Totals may not add due to rounding.)

ONTARIO-PRODUCED PULP CHIPS, BY ADMINISTRATIVE REGIONS, 1970

	Northwestern Region	Northeastern Region	Southern Region	Quebec	U.S.A.
Production					
No. of Producing Mills	13	35	32		
Quantity (bone-dry tons)	259,916	320,348	193,607		
Percentage of Total	33.6	41.4	25.0		
Consumption					
No. of Producing Mills	4	4	2	6	4
Quantity (bone-dry tons)	358,522	217,482	34,918	127,220	35,729
Percentage of Total	46.4	28.1	4.5	16.4	4.6

A bitternut hickory, 11" d.b.h.o.b., that will give a butt log ideal for the production of lacrosse sticks. Photo by B. Colvin.



SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1970-1

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stump \$
CORDAGE					
Pulpwood Rough	White Pine		10,649.48	905,206.30	26,746
	Red Pine		10,287.50	874,437.70	24,529
	Jack Pine		408,053.13	34,684,516.19	890,203
	Scots Pine		164.95	14,020.75	247
	Pine — all		10.10	858.50	14
	All Spruce		779,858.17	65,745,302.51	2,545,554
	Hemlock		4,216.24	358,380.40	6,873
	Balsam		43,838.48	3,726,269.24	85,011
	Cedar		655.06	55,680.10	1,384
	Tamarack		38.92	3,308.20	75
	Conifers		118.42	10,065.70	426
	Maple		201.09	17,092.65	708
	Yellow Birch		13.70	1,164.50	13
	White Birch		5,369.34	456,393.90	6,238
	Oak		.88	74.80	
	Beech		.80	68.00	
	Ash		2.50	212.50	2
	Elm		1.80	153.00	1
	Black Charm		1.66	141.10	1
	Black Cherry		.36	30.60	
	Poplar		134,926.64	11,491,376.45	93,308
	Hardwoods		16,944.03	1,440,242.35	22,772
	Total		1,415,353.25	119,784,995.44	3,704,117
Pulpwood Peeled	Jack Pine		16,081.29	1,608,129.00	39,437
	All Spruce		63,082.59	6,305,281.50	231,259
	Hemlock		11.80	1,180.00	20
	Balsam		7,987.41	797,791.35	16,934
	White Birch		768.92	68,746.40	844
	Poplar		26,099.40	2,316,531.60	28,767
	Hardwoods		465.99	46,599.00	396
	Total		114,497.40	11,144,258.85	317,659
Veneer Bolts	All Spruce		943.01	80,155.85	2 207
	White Birch		2,336.10	198,568.69	3,307
	Poplar		15,482.66	1,316,026.10	2,273 12,763
	Total		18,761.77	1,594,750.64	18,344
			10,701.77	1,334,/30.04	10,344
Fuelwood	Jack Pine		1,044.79	88,807.15	582
	Tamarack		9.49	806.65	4
	Conifers		1,495.81	127,193.85	939
	White Birch		6.08	516.80	3

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1970-1 (Continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stumpage \$
CORDAGE (conta	inued)				
Fuelwood (continued)	Beech Hardwoods		60.80 4,415.28	5,168.00 377,426.30	39.52 3,731.75
	Total		7,032.25	599,918.75	5,301.32
	Total Cordage		1,555,644.67	133,123,923.68	4,045,423.03
LOGS, LONG TI	MBERS				
Pulp Logs	White Pine Red Pine Jack Pine All Spruce Balsam Cedar Tamarack Conifers Poplar Hardwoods	390,570 3,900 1,623,074 7,175,478 584,100 20 7,244 18,208	809,851.24 16,342.40 7,036,060.08 24,145,090.41 1,926,191.53 209.00 497.10 19,933.93 3,670.00 106,177.81	809,851.24 16,342.40 7,036,060.08 24,145,090.41 1,926,191.53 209.00 497.10 19,933.93 3,670.00 106,177.81	13,701.12 337.83 176,495.59 894,294.70 37,591.57 9.42 16.24 350.09 51.38 835.91
	Total	9,802,594	34,064,023.50	34,064,023.50	1,123,683.85
Sawlogs (Cu. Ft.)	White Pine Red Pine Jack Pine Pine — all All Spruce Hemlock Balsam Cedar Tamarack Maple Yellow Birch White Birch Oak Beech Ash Elm Basswood Poplar Hardwoods Total	105,615 109,566 1,859,829 3,515 2,246,222 1,267 42,304 5,009 627 3,005 41,992 36 246,171 26,303 4,691,461	1,383,954.82 868,815.93 10,175,222.19 12,831.21 12,541,940.06 22,972.94 192,526.21 19,095.18 3,801.04 3,504.20 15,664.20 263,958.59 1,984.30 463.00 798.37 51.00 2,411.00 1,837,975.76 191,045.71 27,539,015.71	1,389,482.02 872,794.17 10,177,449.96 12,831.21 12,543,844.34 22,972.94 192,568.21 20,654.22 3,801.04 3,504.20 15,664.20 263,958.59 1,984.30 463.00 798.37 51.00 2,411.00 1,837,975.76 191,045.71	86,323.77 57,361.07 319,625.98 423.42 225,135.72 412.91 3,649.92 681.30 106.14 224.37 131.63 3,220.53 115.77 13.90 35.86 2.55 192.90 22,890.69 6,444.09
Veneer Logs (Cu. Ft.)	White Pine	99 54,582	802.47 370,018.88	802.47 370,018.88	28.41 13,305.26

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1970-1 (Continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stum _j
LOGS, LONG	TIMBERS (Continued)				
Veneer logs	Balsam	32	115.45	115.45	
(continued)	White Birch	23,231	140,594.65	140,594.65	1,94
	Poplar	525,600	3,325,345.12	3,325,345.12	36,61
	Total	603,544	3,836,876.57	3,836,876.57	51,89
Long Timber	White Pine	2,001	29,719.22	29,719.22	2,44
LOTIS TITLE	Red Pine	23,423	511,554.36	511,554.36	54,93
	Jack Pine	11,518	146,439.33	146,439.33	12,92
	All Spruce	18,860	136,802.22	136,802.22	8,30
	Hemlock	1,480	49,063.45	49,063.45	2,90
	Balsam	677	3,693.20	3,693.20	12
	Cedar	842	3,233.21	3,233.21	12
	Tamarack	4	35.17	35.17	
		268	5,404.49	5,404.49	34
	Conifers	610	2,753.37	2,753.37	
	Poplar	010	2,185.00	2,185.00	1
	Hardwoods	TO 100			92.1
	Total	59,683	890,883.02	890,883.02	82,17
Sawlogs MBM	White Pine	727,621	58,346.55	8,530,859.06	670,51
04,110,00	Red Pine	162,702	9,590.25	1,462,319.62	103,39
	Jack Pine	58,879	1,717.60	287,659.70	8,27
	All Spruce	210,618	8,524.51	1,351,765.24	75,10
	Hemlock	82,470	6,243.89	917,573.01	27,1
		6,749	167.73	29,791.99	1,99
	Balsam	3,249	82.82	15,868.09	8.
	Cedar	261	8.49	1,478.34	
	Tamarack	442,619	32,163.54	4,786,311.64	282,9
	Maple		28,031.69	4,041,706.02	413,3
	Yellow Birch	387,492		535,630.77	22,3
	White Birch	72,363	3,497.73	239,859.11	
	Oak	30,074	1,478.78		15,1
	Beech	23,674	1,414.50	211,954.27	7,1
	Ash	3,622	205.78	31,738.63	1,7
	Elm	9,212	892.18	132,976.77	7,3
	Basswood	29,114	1,607.18	259,150.01	20,2
	Butternut	15	.92	172.71	
	Black Cherry	2,002	129.58	18,944.44	8
	Poplar	76,242	3,805.32	616,048.97	16,9
	Total	2,328,978	157,909.04	23,471,808.39	1,675,5
Veneer Logs MBM	White Birch	41	2.38	340.19	
	Total	41	2.38	340.19	
	Total Logs, Long Timbers	17,486,301	66,488,710.22	89,818,185.91	3,660,3

SUMMARY OF VOLUME AND VALUE OF TIMBER CUT ON CROWN LAND, 1970-1 (Continued)

Class	Species	Pieces	Volume	Equivalent Cubic Feet	Stumpage \$
TREE LENGTH	White Pine	223	6,941.34	6,941.34	406.53
MATERIAL	Red Pine	1,310	29,107.14	29,107.14	1,880.30
/VI/ VI LIXI/ VL	Jack Pine	4,867,457	50,902,819.32	50,902,819.32	1,287,153.66
	White Spruce	96,540	1,949,313.67	1,949,313.67	67,641.18
	Black Spruce	2,887,506	14,290,202.94	14,290,202.94	495,870.05
	All Spruce	10,640,233	67,136,997.74	67,136,997.74	2,424,526.31
	Balsam	714,463	4,613,418.09	4,613,418.09	89,950.35
	Cedar	279	1,281.90	1,281.90	37.69
	Tamarack	238	1,276.99	1,276.99	25.54
	White Birch	438	4,300.71	4,300.71	66.58
	Poplar	11,209	189,060.31	189,060.31	1,706.35
	Jack Pine	571,722	18,277.96 M	, ,	73,347.35
	All Spruce	129,062 15	3,411.05 .13	638,771.52 133.78	18,817.30 4.15
	Balsam	19,920,695	139,146,409.29	143,187,158.49	4,461,433.34
WEIGHT MEASI		19,920,093	139,140,409.29	143,107,130.49	4,401,433.34
WEIGHT WILKS	Jack Pine		3,883,377.35	6,922,815.74	174,161.86
	All Spruce		4,924,693.36	9,171,220.99	322,607.57
	Hemlock		102,025.07	170,041.76	3,115.34
	Balsam		97,366.60	174,225.46	4,402.59
	Conifers		48,331.40	80,552.31	3,804.97
	Poplar		139,321.48	236,860.72	2,111.50
	Hardwoods		7,607,247.93	12,690,885.38	146,184.16
	Total		16,802,363.19	29,446,602.36	656,387.99
MISCELLANEOL	JS				
Poker Poles	Hardwoods		1,515.56	128,822.60	1,515.56
Mining Timber	Jack Pine	2,634	5,340.29	5,340.29	125.51
O CONTRACTOR OF THE CONTRACTOR	All Spruce	6,653	12,597.91	12,597.91	453.54
	Tamarack	21	46.44	46.44	1.28
Posts	All Spruce	30	32.84	32.84	5.00
	Cedar		5,501.81	5,501.81	203.54
Posts	Cedar	167	13.05	48.43	1.67
Poker Poles	Poplar	5,000	5,000.00	2,500.00	100.00
Christmas Trees	All Spruce	13,414	13,364.29	8,401.65	674.45
	Balsam	600	300.00	300.00	60.00
Posts	Pine — all		12,877.92 Li	n. Ft. 272.00	128.76
	All Spruce	30	210.00	42.00	4.20
	Cedar	27,905	206,955.88	45,091.39	2,484.96
	Total	56,287	263,755.99	208,997.36	5,758.47
	GRAND TOTAL				

Number of District Cutting Licences issued and included in above: 2,333

TIMBER SALES

FROM APRIL 1, 1970, TO MARCH 31, 1971

Date Sold 1970	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
May 5	Unsurveyed Territory Kenora District	0.9	2	Bruce Bowman Box 651 Red Lake, Ontario	Spruce pulpwood Jack pine pulpwood	0.05 0.50	0.90	2.80 2.00	3.75 per co 2.50 per co
May 27	Timmins Township	0.3	1	Porquis Forest Products Limited Porquis, Ontario	Jack pine pulpwood Spruce pulpwood	0.10 0.10	0.10 0.20	2.00 2.80	2.20 per co 3.10 per co
May 27	Evelyn Township	0.1	6	Alexander M. Ryan 133 Carlin Avenue Timmins, Ontario	Jack pine pulpwood	6.65	1.35	2.00	10.00 per co
June 5	Prince Township	0.8	2	Allen Catling R.R. #2 Echo Bay, Ontario	White pine saw-logs Spruce saw-logs Balsam saw-logs Cedar saw-logs Maple saw-logs Yellow birch saw-logs Oak saw-logs	10.00 5.00 3.00 2.00 9.10 26.60 5.00	10.00 8.00 4.00 5.00 7.00 20.00 5.00	5.00 4.00 4.00 3.00 5.00 5.00	25.00 per <i>N</i> 17.00 per <i>N</i> 11.00 per <i>N</i> 10.00 per <i>N</i> 21.10 per <i>N</i> 51.60 per <i>N</i> 15.00 per <i>M</i>
July 20	Faraday Township	1.1	3	William MacKenzie and Son Limited R.R. #3 Bancroft, Ontario	White pine saw-logs Red pine saw-logs Spruce saw-logs Balsam saw-logs Hemlock saw-logs Cedar saw-logs Tamarack saw-logs Basswood saw-logs Maple saw-logs Yellow birch saw-logs Elm saw-logs Oak saw-logs Oak saw-logs Oak saw-logs White birch saw-logs Poplar saw-logs Cherry saw-logs Balsam pulpwood Spruce pulpwood Hardwood pulpwood	4.00 4.00 9.00 7.00 5.00 7.50 10.50 10.50 13.50 13.50 15.50 5.00 13.50	9.00 9.00 10.00 5.00 4.00 6.00 4.00 10.00 7.00 10.00 4.00 4.00 6.00 3.50 5.50 3.50 4.00 0.60 0.20 0.25	5.00 5.00 4.00 4.00 3.00 3.00 5.00 5.00 5.00 5.00 5.00 1.50 1.50 1	18.00 per N 18.00 per N 18.00 per N 18.00 per N 14.00 per N 14.00 per N 14.00 per N 22.50 per N 20.00 per cc 3.00 per cc 0.75 per cc
July 21	Fenwick Township	1.1	1	Kenneth Pierman Goulais River, Ontario	Spruce pulpwood Balsam pulpwood Cedar saw-logs	0.75 0.50 0.0200	0.70 1.10 0.0235	2.80 1.40 0.0165	4.25 per co 3.00 per co 0.0600 per

FROM APRIL 1, 1970, TO MARCH 31, 1971

Date Sold 1970	Locality	Area Sq. M.	No. of Tenders To Whom Sold	Kind of Timber	Pid \$	Bonus \$	Dues \$	Total \$
				Tamarack saw-logs Spruce saw-logs Balsam saw-logs Maple saw-logs Yellow birch saw-logs White birch saw-logs Poplar saw-logs Other hardwood saw-logs	0.0200 0.0200 0.0200 7.00 12.00 5.00 2.00 2.00	0.0270	0.0165 0.0330 0.0165 5.00 5.00 1.50 1.50	0.0600 per cu. ft. 0.0800 per cu. ft. 0.0600 per cu. ft. 19.00 per MBM 37.00 per MBM 20.00 per MBM 7.00 per MBM
July 21	McClintock Township	6.7	2 Nelson Wood Products Limite R.R. #1 Gravenhurst, C	Beech saw-logs	8.00 15.00 5.00 2.00 	7.00 15.00 3.50 5.00 10.00 5.00 10.00 8.00 5.00 5.00 5.00 5.00 3.50 3.00 4.00 0.45 0.60 0.50	5.00 5.00 1.50 3.00 5.00 5.00 5.00 4.00 1.50 5.00 5.00 5.00 1.50 3.00 4.00 2.80 1.40 0.50	20.00 per MBM 35.00 per MBM 10.00 per MBM 10.00 per MBM 15.00 per MBM 20.00 per MBM 6.00 per Cord 2.00 per Cord 4.00 per Cord
July 24	Gould Township	0.2	4 Aldage Piche 201 Main Stree * Thessalon, Ont	Yellow birch saw-logs of veneer quality	26.00 1.50 4.00 4.00 5.00 5.00 7.00	25.00 8.50 3.00 4.00 5.00 10.00 5.00 0.007	5.00 1.50 3.00 4.00 5.00 5.00 5.00 0.033	56.00 per MBM 11.50 per MBM 10.00 per MBM 12.00 per MBM 15.00 per MBM 20.00 per MBM 17.00 per MBM 0.04 per cu. ft.
July 27	Mayo Township	0.4	4 William Arthur McMurray	White pine saw-logs Red pine saw-logs	4.00 4.00	11.00 11.00	5.00 5.00	20.00 per MBM 20.00 per MBM continued

FROM APRIL 1, 1970, TO MARCH 31, 1971

Date Sold 1970	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
				Gilmour, Ontario	Spruce saw-logs	4.00	12.00	4.00	20.00 per M
					Balsam saw-logs	10.00	6.00	4.00	20.00 per M
					Hemlock saw-logs	10.00	5.00	3.00	18.00 per M
					Cedar saw-logs	12.00	5.00	3.00	20.00 per M.
					Basswood saw-logs	3.00	12.00	5.00	20.00 per M
					Maple saw-logs	8.00	9.00	5.00	22.00 per M
					Yellow birch saw-logs	15.00	10.00	5.00	30.00 per M
					Elm saw-logs	10.00	5.00	5.00	20.00 per M.
					Ash saw-logs	10.00	5.00	5.00	20.00 per M
					Oak saw-logs	7.00	8.00	5.00	20.00 per M
					Beech saw-logs	14.00	4.50	1.50	20.00 per M
					White birch saw-logs	22.00	6.50	1.50	30.00 per M
					Poplar saw-logs	14.00	4.50	1.50	20.00 per M
					Hardwood pulpwood	0.25	0.25	0.50	1.00 per co
July 27	McClure	0.1	2	Clarence Wasmund	White pine saw-logs	6.25	9.00	5.00	20.25 per M
	Township			Maple Leaf, Ontario	Spruce saw-logs	6.25	10.00	4.00	20.25 per M
					Balsam saw-logs	11.25	5.00	4.00	20.25 per M
					Hemlock saw-logs	7.25	5.00	3.00	15.25 per M
					Cedar saw-logs	7.25	5.00	3.00	15.25 per M
					Basswood saw-logs	6.25	9.00	5.00	20.25 per MI
					Maple saw-logs	9.25	6.00	5.00	20.25 per M
					Yellow birch saw-logs	6.25	9.00	5.00	20.25 per MI
					Elm saw-logs	6.25	4.00	5.00	15.25 per MI
					Ash saw-logs	5.25	5.00	5.00	15.25 per MI
					Beech saw-logs	9.25	4.50	1.50	15.25 per MI
					White birch saw-logs	7.25	6.50	1.50	15.25 per MI
					Poplar saw-logs	9.25	4.50	1.50	15.25 per MI
					Cherry saw-logs	5.25	5.00	5.00	15.25 per MI
Aug. 7	Lyndoch	0.3	2	Darwin Weichenthal	White pine saw-logs	5.10	10.00	5.00	20.10 per MI
	Township			R.R. #2	Maple saw-logs	5.00	8.00	5.00	18.00 per MI
				Palmer Rapids, Ontario	Beech saw-logs	8.00	4.50	1.50	14.00 per MI
					Basswood saw-logs	4.00	11.00	5.00	20.00 per MI
					Yellow birch saw-logs	5.00	11.00	5.00	21.00 per MI
					Oak saw-logs	4.00	7.00	5.00	16.00 per MI
					Poplar saw-logs Hardwood pulpwood	6.00 0.50	4.50 0.25	1.50 0.50	12.00 per Ml 1.25 per co
Cont 10	Abordoor	0.3	2	Alex Cain Limited					·
Sept. 10	Aberdeen	0.2	2		White pine saw-logs	7.00	10.00	5.00	22.00 per MI
	Additional			P.O. Box 296	Spruce saw-logs	4.00	8.00	4.00	16.00 per MI
	Township			Sault Ste. Marie,	Balsam saw-logs	4.00	4.00	4.00	12.00 per MI
				Ontario	Hemlock saw-logs	2.00	5.00	3.00	10.00 per MI
					Cedar saw-logs	2.00	5.00	3.00	10.00 per MI

continue

FROM APRIL 1, 1970, TO MARCH 31, 1971

Date Sold 1970	Locality	Area Sq. M.	No. of Tenders	To Whom Sold	Kind of Timber	Bid · \$	Bonus \$	Dues \$	Total \$
					Maple saw-logs	6.00	7.00	5.00	18.00 per MBM
					Yellow birch saw-logs	32.00	20.00	5.00	57.00 per MBM
					White birch saw-logs	10.00	13.50	1.50	25.00 per MBN
					Oak saw-logs	8.00	5.00	5.00	18.00 per MBM
					Spruce saw-logs		0.0270	0.0330	0.06 per cu. ft
					Balsam saw-logs	_	0.0235	0.0165	0.04 per cu. ft
Nov. 25	Bridgland Township	0.1	4	Leonard N. Smith R.R. #2	Yellow birch saw-logs of veneer quality	30.00	25.00	5.00	60.00 per MBM
				Thessalon, Ontario	Maple saw-logs of veneer quality	10.00	5.00	5.00	20.00 per MBN
					Hemlock saw-logs	1.00	3.00	3.00	7.00 per MBM
					Oak saw-logs	10.00	5.00	5.00	20.00 per MBM
Dec. 3	McConkey	0.1	6	Gilbert Gorham	Maple saw-logs	18.00	7.00	5.00	30.00 per MBM
DCC. J	Township	0.,	Ŭ	Loring, Ontario	Basswood saw-logs	15.00	10.00	5.00	30.00 per MBN
	ТОТТІЗПІР			2011110/ 01110111	Poplar saw-logs	5.00	3.50	1.50	10.00 per MBM
					Yellow birch saw-logs	25.00	15.00	5.00	45.00 per MBN
					Elm saw-logs	20.00	5.00	5.00	30.00 per MBN
					Spruce saw-logs	8.00	8.00	4.00	20.00 per MBN
					Oak saw-logs	10.00	5.00	5.00	20.00 per MBN
					Ash saw-logs	10.00	5.00	5.00	20.00 per MBN
					Hemlock saw-logs	2.00	5.00	3.00	10.00 per MBN
Dec. 11	Ashby	0.1	1	George Stein	White pine saw-logs	1.00	10.00	5.00	16.00 per MBA
DCC. II	Township	0.1	•	R.R. #2	Spruce saw-logs	4.00	12.00	4.00	20.00 per MBN
	TOWNSHIP			Palmer Rapids,	Balsam saw-logs		6.00	4.00	10.00 per MBM
				Ontario	Hemlock saw-logs	4.00	5.00	3.00	12.00 per MBN
					Cedar saw-logs		5.00	3.00	8.00 per MBN
					Basswood saw-logs	4.00	11.00	5.00	20.00 per MBM
					Maple saw-logs	2.00	8.00	5.00	15.00 per MBN
					Yellow birch saw-logs	9.00	11.00	5.00	25.00 per MBM
					Elm saw-logs	_	5.00	5.00	10.00 per MBN
					Ash saw-logs		5.00	5.00	10.00 per MBN
					Oak saw-logs		7.00	5.00	12.00 per MBN
					Beech saw-logs	_	4.50	1.50	6.00 per MBN
					White birch saw-logs	_	6.50	1.50	8.00 per MBN
					Poplar saw-logs		4.50	1.50	6.00 per MBN
					Hardwood pulpwood	_	0.25	0.50	0.75 per cord
Dec. 11	Ashby	0.1	1	George Stein	Spruce saw-logs	4.00	12.00	4.00	20.00 per MBA
Dec. 11	Township	0.1	'	R.R. #2	Balsam saw-logs	4.00	6.00	4.00	14.00 per MBN
	rownsnip			Palmer Rapids,	Hemlock saw-logs	4.00	5.00	3.00	12.00 per MBN
				rainter Rapids,	Cedar saw-logs	4.00	5.00	3.00	12.00 per MBA

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FROM APRIL 1, 1970, TO MARCH 31, 1971

Date Sold 1970	Locality	Area No. of Sq. M. Tenders To Whom Sold	Kind of Timber	Bid \$	Bonus \$	Dues \$	Total \$
			Maple saw-logs	8.00	8.00	5.00	21.00 per M
			Yellow birch saw-logs	9.00	11.00	5.00	25.00 per MI
			White birch saw-logs	10.00	6.50	1.50	18.00 per MI
			Basswood saw-logs	5.00	11.00	5.00	21.00 per M
			Oak saw-logs	5.00	7.00	5.00	17.00 per M
			Beech saw-logs	6.00	4.50	1.50	12.00 per M
			Poplar saw-logs	4.00	4.50	1.50	10.00 per M
			Elm saw-logs	2.00	5.00	5.00	12.00 per M
			Hardwood pulpwood	-	0.25	0.50	0.75 per co

CROWN TIMBER LICENCES, 1970-71

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type of Transaction
April 2/70	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 111, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
April 2/70	Joseph A. Bliss Mine Centre, Ontario	Unsurveyed Territory Rainy River District	1975	New
April 2/70	Frank H. Spence Limited P.O. Box 417, Thunder Bay P Ontario	Unsurveyed Territory Thunder Bay District	1975	Reissue
April 2/70	Jesse Georgeson 540 Webster Avenue Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1973	New
April 2/70	Carson Lake Lumber Ltd. 185 Pembroke Street West Pembroke, Ontario	Barron & Stratton Townships	1971	New
April 2/70	Hoey & McMillan Limited Box 2019, Dryden, Ontario	Unsurveyed Territory Rainy River District	1972	New
April 2/70	Frank Lecomte and Archie Ross P.O. Box 328 Ear Falls, Ontario	Willans Township and Unsurveyed Territory Kenora District	1976	Reissue
April 2/70	Gustav Sotke P.O. Box 221 Red Lake, Ontario	Unsurveyed Territory Kenora District	1975	New
April 2/70	A. J. Labelle Box 177, Hudson, Ontario	Unsurveyed Territory Kenora District	1975	New
April 9/70	The Great Lakes Paper Company P.O. Box 430, Postal Station "F" Thunder Bay, Ontario	Unsurveyed Territory Thunder Bay	1971	New
April 9/70	Ankney & Franklin Contracting Limited Savant Lake, Ontario	McCubbin, Conant & Boucher Townships	1971	New
April 9/70	Multiply Plywoods Limited P.O. Box 910 Nipigon, Ontario	Unsurveyed Territory Thunder Bay	1971	New
April 9/70	Grant & Wilson Lumber Limited Elk Lake, Ontario	Burt Township	1972	New
April 16/70	Roger Couture R.R. #2 Bruce Mines, Ontario	Kirkwood & Bridgland Townships	1971	New

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ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type o Transact
April 16/70	Dickenson Mines Limited Suite 416 25 Adelaide Street West Toronto, Ontario	Balmer Township	1975	Reiss
April 16/70	Sioux Lookout Forest Products Limited P.O. Box 609 Sioux Lookout, Ontario	Unsurveyed Territory Kenora District	1972	Reiss
April 16/70	Chapleau Lumber Company Limited Chapleau, Ontario	Ramsden & Buckland Townships	1972	Reiss
April 16/70	Red Lake Lumber Co. Limited P.O. Box 9, Red Lake, Ontario	Unsurveyed Territory Kenora District	1975	Reiss
April 16/70	Regional Logging Industries Limited P.O. Box 519 Dryden, Ontario	MacFie Township & Unsurveyed Territory Kenora Township	1971	New
April 16/70	Albert Kapush Contracting Limited R.R. #12 Thunder Bay, Ontario	Schwenger Township	1973	New
April 16/70	Walter Tuzyk P.O. Box 178, Red Lake, Ontario	Unsurveyed Territory Kenora District	1973	Reiss
April 16/70	A. & L. Lafreniere Lumber Limited P.O. Box 340, Chapleau, Ontario	D'Arcy Township	1972	Reiss
April 16/70	Feldman Timber (Matheson) Limited Timmins, Ontario	Garrison, Thackerary & Elliott Townships	1971	New
April 16/70	Henry Johnson Timber Company Limited 369 Queen Street Sault Ste. Marie, Ontario	3H Township	1975	New
April 21/70	Albert Beck P.O. Box 819, Sioux Lookout, Ontario	Unsurveyed Territory Kenora District	1974	New
April 30/70	R. E. Bowman P.O. Box 66, Hudson, Ontario	Unsurveyed Territory Kenora District	1974	New
April 30/70	Kenneth McDougall P.O. Box 310, Red Lake, Ontario	Heyson Township	1973	Reissu
April 30/70	Multiply Plywoods Limited P.O. Box 910, Nipigon, Ontario	Joynt & Savanne Townships	1971	New
May 7/70	Swanson Bros. Logging Contractors P.O. Box 1209, Cochrane, Ontario	Beniah Township	1971	New
May 7/70	John B. Smith & Sons Ltd. 53 Strachan Avenue, Toronto, Ontario	Fell Township	1971	Reissı

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ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type of Transaction
May 7/70	Multiply Plywoods Ltd. P.O. Box 910, Nipigon, Ontario	Unsurveyed Territory Thunder Bay	1971	New
May 7/70	Anthony Forgione Box 716, Bracebridge, Ontario	Ridout Township	1973	New
May 7/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Stratton Township	1971	New
May 14/70	C. A. Wasmund & Sons Limited Maple Leaf, Ontario	Carlow, Bangor & Monteagle Townships	1975	Reissue
May 14/70	Feldman Timber Company Limited P.O. Box 440, Timmins, Ontario	Godfrey Township	1972	Reissue
May 14/70	Leonard Jones Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1971	New
May 14/70	Bruce Campbell Quibell, Ontario	Unsurveyed Territory Kenora District	1971	New
May 14/70	Joseph Kirovac Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1971	New
May 14/70	Rene Ross Red Lake Road, Ontario	Unsurveyed Territory Kenora District	1971	New
May 14/70	Maurice Ouellette Box 64, Dryden, Ontario	Unsurveyed Territory Kenora District	1971	New
May 28/70	L. Vincent Burns Box 222, Massey, Ontario	Tennyson Township	1971	New
May 28/70	Jesse Georgeson 540 Webster Avenue Fort Frances, Ontario	Tanner & Bennett Townships	1973	New
May 28/70	G. & B. Logging Limited 5 First Avenue, Wawa, Ontario	Unsurveyed Territory Algoma District	1971	New
May 28/70	Buchanan Brothers (Ontario) Limited Box 419, Red Rock, Ontario	Glenn Township	1971	New
May 28/70	G. L. McKnight Lee Valley, Ontario	McKinnon Township	1972	Reissue
May 28/70	Rene Fabris Box 327, Elliot Lake, Ontario	Esten Township	1972	New
May 28/70	Ludger Otis c/o G. H. Veillieux 73 Royal York Blvd. Sault Ste. Marie, Ontario	Hodgins Township	1971	New

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ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type o
May 28/70	Laurent Duplin Searchmont, Ontario	Shields & Gaudette Townships	1971	New
June 25/70	John B. Smith & Sons Limited 53 Strachan Avenue Toronto 3, Ontario	Phyllis, Yates & Vogt Townships	1980	Reiss
June 25/70	George Everett Box 24, Espanola, Ontario	Nairn Township	1973	New
June 25/70	Shuniah Contracting Limited R.R. #13, Thunder Bay, Ontario	MacGregor Township	1971	New
June 25/70	M. J. Labelle Co. Ltd. Cochrane, Ontario	Calder & Lennox Townships	1975	Reiss
June 25/70	Roger Fryer Monetville, Ontario	Cherriman Township	1972	New
June 25/70	Remus Brothers Pembroke, Ontario	Master, McKay & Petawawa Townships	1972	Reissi
June 25/70	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 111, Ontario	Unsurveyed Territory, Thunder Bay & Kenora Districts	1989	Reissı
July 2/70	James Gibson & Sons Limited P.O. Box 734, North Bay, Ontario	Notman, Stewart & Merrick Townships	1972	New
July 7/70	Cochrane Logging Limited P.O. Box 1958, Cochrane, Ontario	Beck Township	1971	New
July 7/70	Bruce Shier & Frederick Shier Hunta, Ontario	Dargavel Township	1971	New
July 7/70	Elmer Pasanen South Porcupine, Ontario	Lucas Township	1971	New
July 16/70	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 111, Ontario	Goodfellow Township	1971	New
July 16/70	Maurice Lecours P.O. Box 1000, Hearst, Ontario	Bannerman Township	1971	New
luly 23/70	Gilles Rousseau Lumber Limited Blind River, Ontario	Scarfe Township	1971	New
July 23/70	Jack Finch Emo, Ontario	Tanner & Bennett Townships	1973	New
July 23/70	William Rothenburger 489 Lyons Avenue, Postal Station "P" Thunder Bay, Ontario	Harwick, Robbins & Jean Townships	1971	Reissu

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type of Transaction
July 23/70	Lac Seul Land & Lumber Company Limited P.O. Box 627, Thunder Bay P, Ontario	Unsurveyed Territory Kenora District	1979	Reissue
July 23/70	Meadowside Lumber Limited 1230 Fraser Street, North Bay, Ontario	Charlton, Blyth & Lyman Districts	1973	Reissue
July 23/70	David Noik and Bernard Noik P.O. Box 516, Pembroke, Ontario	McKay & Petawawa Townships	1971	Reissue
August 6/70	Allan Lahaie & Son Port Loring, Ontario	Cox Township	1972	Reissue
August 6/70	Victor Roy Britt, Ontario	Mowat Township	1973	New
August 6/70	George W. Skidmore R.R. #2, Cochrane, Ontario	Kennedy Township	1971	New
August 6/70	Herb Shaw & Sons Limited 137 MacKay Street, Pembroke, Ontario	White & Niven Townships	1972	New
August 6/70	Henry Johnson Timber Co. Limited 369 Queen Street East Sault Ste. Marie, Ontario	Townships 22 and 23	1972	New
August 12/70	Jamot Lumber Company Limited R.R. #1, Rutter, Ontario	Blair Township	1973	Reissue
August 12/70	William Pickard Batchawana, Ontario	Township 26	1971	New
August 12/70	The Great Lakes Paper Company Limited P.O. Box 430, Thunder Bay F, Ontario	Unsurveyed Territory Kenora & Thunder Bay Districts	1975	New
August 27/70	Ludger Otis c/o G. H. Veillieux, 73 Royal York Blvd. Sault Ste. Marie, Ontario	Hodgins Township	1971	New
August 27/70	Hoey & McMillan Limited Box 2019, Dryden, Ontario	Smellie Township	1976	New
August 27/70	James Gibson [*] 215 Mercury Avenue, Atikokan, Ontario	Tanner & Bennett Townships	1973	New
August 27/70	Allan Lahaie & Son Alban, Ontario	Hoskin Township	1972	New
August 27/70	Rene Champoux Searchmont, Ontario	Marne Township	1971	New
August 27/70	Buchanan Brothers (Ontario) Limited Box 419, Red Rock, Ontario	Unsurveyed Territory Thunder Bay District	1971	New

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ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

Date	Licensee	Location	Expiry March 31st	Type Transac
August 27/70	Omer M. Williamson 1015 Colonization Road West Fort Frances, Ontario	Tanner & Bennett Townships	1973	New
September 3/70	Weldwood of Canada Limited P.O. Box 395, Norwich Avenue Woodstock, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
September 3/70	Northern Forest Products Limited P.O. Box 990, Thunder Bay P, Ontario	Unsurveyed Territory Thunder Bay District	1972	New
September 9/70	James Vibert R.R. #2, Thunder Bay F, Ontario	Inwood Township	1971	New
September 9/70	Regis Poulin 378 Frontenac Sault Ste. Marie, Ontario	Township 27	1971	New
September 9/70	Jerry Rathwell Dryden, Ontario	Tustin Township	1971	New
September 9/70	Flek Timber Company Limited Opasatika, Ontario	Fleck Township	1975	New
September 17/70	Bay Lumber Limited Westree, Ontario	North Williams & Dufferin Townships	1971	Nev
September 24/70	V. & G. Logging Heyden, Ontario	Shields Township	1972	Nev
October 8/70	Rogerson Lumber Company Limited Port Loring, Ontario	Carlyle Township	1972	Nev
October 22/70	Rosaire Bouchard R.R. #1, Moonbeam, Ontario	Nansen Township	1971	Nev
October 22/70	Alfred Isabelle P.O. Box 119, Opasatika, Ontario	McCowan Township	1971	Nev
October 22/70	Leonard Angus R.R. #1, Devlin, Ontario	Unsurveyed Territory Rainy River District	1974	Nev
October 22/70	Chantier Co-operative De Barker P.O. Box 2, Val Rita, Ontario	Barker Township	1971	Nev
October 29/70	Howard Recoskie Box 521, Cochrane, Ontario	Kennedy Township	1971	Nev
October 29/70	H. D. Fryer Monetville, Ontario	Falconer Township	1972	Reis
				continu

Date	Licensee	Location	Expiry March 31st	Type of Transaction
October 29/70	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Bisley Township	1971	New
October 29/70	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 111, Ontario	Goodfellow & Fallis Townships	1971	New
November 5/70	Ludger Otis c/o G. H. Veillieux, 73 Royal York Blvd. Sault Ste. Marie, Ontario	Hodgins Township	1971	New
November 5/70	George Rousson R.R. #1, Timmins, Ontario	Montrose Township	1971	New
November 5/70	Nychuk Lumber Limited P.O. Box 56, Swastika, Ontario	Sheba Township	1971	New
November 5/70	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Morel & Yarrow Townships	1971	New
November 5/70	Buchanan Bros. (Ontario) Limited P.O. Box 419, Red Rock, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
November 5/70	Abitibi Paper Company Ltd. Toronto-Dominion Centre Toronto 111, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
November 5/70	Multiply Plywoods Limited P.O. Box 910, Nipigon, Ontario	McMaster Township	1971	New
November 5/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Lockhart, Jocko & Eddy Townships	1972	Reissue
November 5/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Stratton Township	1972	Reissue
November 5/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Hartle & Burnaby Townships	1973	Reissue
November 5/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald & Deacon Townships	1972	Reissue
November 5/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Bronson Township	1971	Reissue
November 5/70	La Societe Co-operative De Mattice Mattice, Ontario	McCrea Township	1971	New
				continued

Date	Licensee	Location	Expiry March 31st	Type o Transact
November 12/70	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald & Deacon Townships	1971	Reiss
November 12/70	Leonard John Gulick Palmer Rapids, Ontario	Lyndoch & Griffith Townships	1981	New
November 12/70	Frank Peterson Box 358, Kenora, Ontario	Unsurveyed Territory Kenora District	1973	New
November 17/70	Trilake Timber Company Ltd. P.O. Box 361, Kenora, Ontario	Haycock Township	1973	New
November 17/70	The Great Lakes Paper Company Limited P.O. Box 430, Thunder Bay F, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
November 26/70	W. G. Tough Limited South River, Ontario	Lount Township	1973	Reiss
November 26/70	Dryden Lumber Company Limited Dryden, Ontario	Unsurveyed Territory Kenora District	1991	Reiss
November 26/70	Polar Lumber Company Limited P.O. Box 880, Hearst, Ontario	Fushimi Township	1971	New
November 26/70	Cloutier Bros. Ltd. Strickland, Ontario	Alexandra Township	1972	New
December 10/70	Gillies Bros. & Co. Ltd. c/o Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	South Lorrain, Strathy & McLaren Townships	1973	Reiss
December 10/70	Gillies Bros. & Co. Ltd. c/o Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Biggar, Pentland & Osler Townships	1975	Reiss
December 10/70	Gillies Bros. & Co. Ltd. c/o Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald Township	1971	Reiss
December 10/70	Gillies Bros. & Co. Ltd. c/o Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	North Canonto & South Canonto Townships	1975	Reiss
December 10/70	Arrow Timber Co. Limited P.O. Box 1210, Hearst, Ontario	Bannerman Township	1971	New
December 10/70	William Pickard Batchawana, Ontario	Township 26	1972	New
				continue

Date	Licensee	Location	Expiry March 31st	Type of Transaction
December 10/70	Regis Poulin 378 Frontenac Street Sault Ste. Marie, Ontario	Township 27	1972	New
December 17/70	Don Belkosky 37 Melville Road Sault Ste. Marie, Ontario	Unsurveyed Territory Thunder Bay District	1971	New
December 17/70	Elgin Stouffer Minden, Ontario	Sherborne & Stanhope Townships	1975	Reissue
December 17/70	Elgin Stouffer Minden, Ontario	Stanhope Township	1973	Reissue
January 14/71	Pick Timber Company Limited Box 65, Sault Ste. Marie, Ontario	Townships 24 and 25	1975	New
January 21/71	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Dunmore Township	1972	New
January 21/71	Vernon Armstrong 1600 Kings Highway P.O. Box 429, Fort Frances, Ontario	Tanner Township	1975	New
January 21/71	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Bisley Township	1971	New
January 21/71	Weldwood of Canada Limited P.O. Box 395, Norwich Avenue Woodstock, Ontario	Uns <mark>urveyed</mark> Territory Thunder Bay District	1971	New
January 21/71	Liskeard Lumber Limited 159 Faren Street, New Liskeard, Ontario	Wallis & Tretheway Townships	1971	New
January 28/71	Wilfred Paiement Earlton, Ontario	Holmes Township	1972	New
January 28/71	Leonard John Gulick Palmer Rapids, Ontario	Abinger Township	1973	New
January 28/71	Regional Logging Industries Limited P.O. Box 519, Dryden, Ontario	Unsurveyed Territory Kenora District	1971	New
January 28/71	Wm. Pollock & Son, Limited Englehart, Ontario	Sharpe Township	1972	Reissue
January 28/71	Roy McDonald Whitedog P.O., via Minaki, Ontario	Unsurveyed Territory Kenora District	1972	New
				continued

ISSUED BY VIRTUE OF SECTION 3(1) OF C.T.A.

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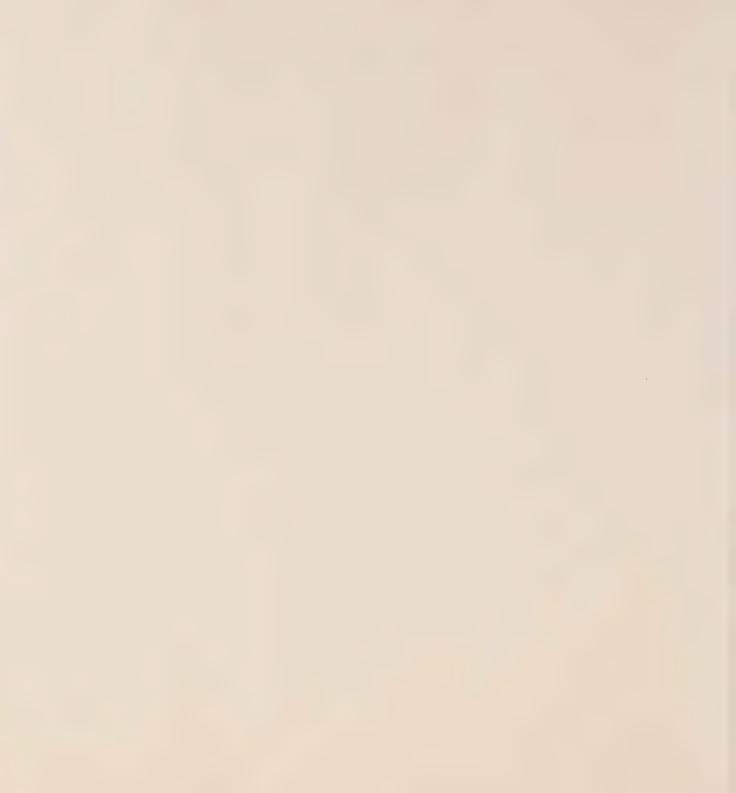
Date	Licensee	Location	Expiry March 31st	Type (Transac
February 4/71	Dubreuil Brothers Limited Dubreuilville, Ontario	Township 31	1971	New
February 4/71	James Gibson & Sons Limited P.O. Box 734, North Bay, Ontario	Phelps Township	1975	Reis
February 4/71	Charles Leray R.R. #1, Keewatin, Ontario	Unsurveyed Territory Kenora District	1973	New
February 4/71	Grant & Wilson Lumber Limited Elk Lake, Ontario	Burt Township	1972	New
February 4/71	G. & B. Logging Limited 5 First Avenue, Wawa, Ontario	Township 31	1972	New
February 4/71	Feldman Timber Company Limited P.O. Box 440, Timmins, Ontario	Enid Township	1971	New
February 11/71	Ernest P. Hoey 44 Wellington Street Sioux Lookout, Ontario	Unsurveyed Territory Kenora District	1971	New
February 11/71	William Milne & Sons Ltd. Timagami, Ontario	Aston, Banting & Best Townships	1984	Reis
February 11/71	Grant Lumber Company Limited Elk Lake, Ontario	Dunmore Township	1972	New
March 1/71	Maurice Lacoursiere Searchmont, Ontario	Gaudette Township	1972	New
March 1/71	Bert Taylor Construction Limited P.O. Box 103, Parry Sound, Ontario	Freeman Township	1972	New
March 1/71	Orval Lougheed General Delivery Keewatin, Ontario	Unsurveyed Territory Kenora District	1974	New
March 1/71	Vic Pearson & Sons Limited Box 113, Fort Frances, Ontario	Unsurveyed Territory Rainy River District	1972	Reiss
March 4/71	Henry Bernard Chapeskie Barry's Bay, Ontario	Dickens & Jones Townships	1973	Reiss
March 4/71	Canadian Johns-Manville Company, Limited, P.O. Box 610 North Bay Ontario	Leo, Dane & Best Townships	1984	Reis
March 4/71	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald Township	1972	New
				continue

Continue

Date	Licensee	Location	Expiry March 31st	Type of Transaction
March 11/71	Kokotow Lumber Limited 5 McCamus Avenue Kirkland Lake, Ontario	Morel Township	1972	New
March 11/71	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Deacon & Fitzgerald Townships	1972	New
March 11/71	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Fitzgerald Township	1972	New
March 11/71	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Stratton Township	1972	New
March 11/71	Consolidated-Bathurst Limited Box 68, Portage Du Fort, Quebec	Edgar Township	1972	New
March 17/71	Gustav Sotke P.O. Box 221, Red Lake, Ontario	Unsurveyed Territory Kenora District	1974	Reissue
March 17/71	William Saskosky P.O. Box 575, Red Lake, Ontario	Unsurveyed Territory Kenora District	1974	Reissue
March 17/71	Hearst Transport & Lumber Company Limited Hearst, Ontario	Fleck Township	1974	New
March 17/71	Murray Bros. Lumber Co. Limited Barry's Bay, Ontario	Clancy Township	1972	Reissue
March 24/71	J. E. Martel & Sons Limited Chapleau, Ontario	Sadler & Pattinson Townships	1973	Reissue
March 24/71	Pembroke Lumber Company Limited P.O. Box 201, Pembroke, Ontario	White & Fitzgerald Townships	1972	Reissue
March 24/71	Alex Jaman Box 1495, Atikokan, Ontario	Schwenger Township	1973	Reissue
March 31/71	Herb Shaw & Sons Limited 137 MacKay Street, Pembroke, Ontario	Niven & Dickson Townships	1972	Reissue
March 31/71	Herb Shaw & Sons Limited 137 MacKay Street, Pembroke, Ontario	Niven Township	1972	Reissue
March 31/71	Herb Shaw & Sons Limited 137 MacKay Street, Pembroke, Ontario	Bronson, Head & Stratton Townships	1972	Reissue











SWADY HOD